MP F20

SERVICE MANUAL

Canon

MultiPASS F20

SERVICE MANUAL

REVISION 0

[**MultiPASS F20** H12-2602 120V USA]

Canon

AUG. 2002 **HY8-19B0-000**

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Application

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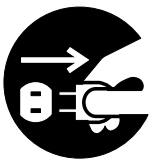
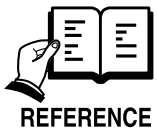
DTP System

This manual was produced on a Windows2000®, personal computer, final pages were printed on AGFA SelectSet Avantra 25.
All graphics were produced with Adobe Illustrator 9.0J®.
All documents and all page layouts were created with Adobe PageMaker 6.5®.

I. MEANING OF MARKS

The marks used in this manual have the following meanings.

Mark	Meaning
	States a precaution to be taken to prevent danger to personnel, damage to the product, or damage to electronic components by discharge of static electricity. for example.
	States a precaution to be taken to prevent damage to electronic components by electrostatic discharge.
	If the following mark is used, following the directions given.
	Informs you of fire-related cautions.
	Informs you that the plug must be removed from the power outlet before starting an operation.
NOTE	Gives useful information to understand descriptions.
 REFERENCE	Indicates sections to be read to obtain more detailed information.

II. ABOUT THIS MANUAL

This manual is divided into five parts, and contains information required for servicing the product.

Each of the above parts is further divided into the following four chapters:

Chapter 1: General Description

This part explains product specifications and the how to service the unit safely. It is very important, so please read it.

Chapter 2: Technical Reference

This part explains the technical theory the product.

Chapter 3: Assembly and Disassembly

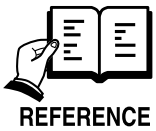
This part explains the assembly and disassembly of the product.

Chapter 4: Maintenance and Service

This part explains how to maintain the products for adjustment and troubleshooting and service operations and service switches.

Chapter 5: Appendix

This part explains the informations of the optional products and user data flow.



- For more details of user operations and user reports, see the separate volume of *USER'S GUIDE*.
- Detailed description of each SSSW/parameter is not given in this manual except the new SSSWs/parameters added to this model.
  See *G3 Facsimile Service Data Handbook (supplied separately)* for details them.
- See the *G3 Facsimile Error Code List (Rev.1, supplied separately)* for details of the error codes not shown in this manual.

III. REVISION HISTORY

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Chapter 1

General Description

1. FEATURES

1.1 Overview

Picture Quality Color Printer

High quality printing can be accomplished with the Canon Bubble Jet (BJ) method using the maximum 2400dpi × 1200dpi resolution. Various kinds of media can be printed with the high speed of a maximum 14 pages per minute. The printing paper tray can hold up to 100 sheets of plain paper, 30 sheets of OHP film, or 10 envelopes.

Copy Function

This machine can be used as a 1200dpi × 1200 dpi high resolution full color copier. With a monochrome document (including half-tone), up to 99 pages can be copied at one time at the speed of a maximum of 14 pages/minute.

Full Color & 256 Gradation Grayscale Scanner

Using graphics or OCR software which conforms to the TWAIN standard, full color and 256-gradation grayscale images with a quality of 40 ~ 9600 dpi can be read into a computer.

Photo Print Function

The user can print photos the/she has shot using a digital camera directly on the F20 without the help of a PC. Simply fit the memory card into the PC car adapter, and set it to the F20 for direct printing from the card.

2. SPECIFICATIONS

2.1 General Specification

Type	Desktop
Body color	Cool White
Power source	98 ~ 132V AC, 48 ~ 62 Hz
Power consumption	Standby 6.3W Max. 36.3 W
Usage environment.	59.0° F ~ 81.5° F (15° C ~ 27.5° C), 20% ~ 80% RH, 760 ~ 1013 hPa Horizontal ±3° or less
Operating noise	Measured in accordance with ISO standards Operating :55 dB(A) or less
Dimensions (W × D × H)	15.59" × 21.57" × 10.87" (396 mm × 548 × 276 m)
Weight	16.8 lbs (7.6 kg)

2.2 Scanner Specification

Type	Book, Sheet
Effective scanning width	Letter 8.42" (214 mm) A4 8.19" (208 mm)
Scanning method	Contact Image sensor scanning method
Scanning resolution	600 × 1200 dpi
Scanning speed	

Mode	Scanning speed
B&W Text	5.3 second/page
Gray scale	5.3 second/page
Color	15.9 second/page

Scanner gradations	Grayscale; 8 bit, 256 gradations Color; R,G,B (8 bits each) full color capability
TWAIN	Yes
Scanning density adjustment	9 density level
Halftone (fax and copy)	64-gradation error diffusion system (UHQ)
Prescan	Yes

Scanning range

Sheet dimensions (W × L)	8.5" × 11.7" (216 mm × 297 mm)
Thickness	0.79" (20 mm)

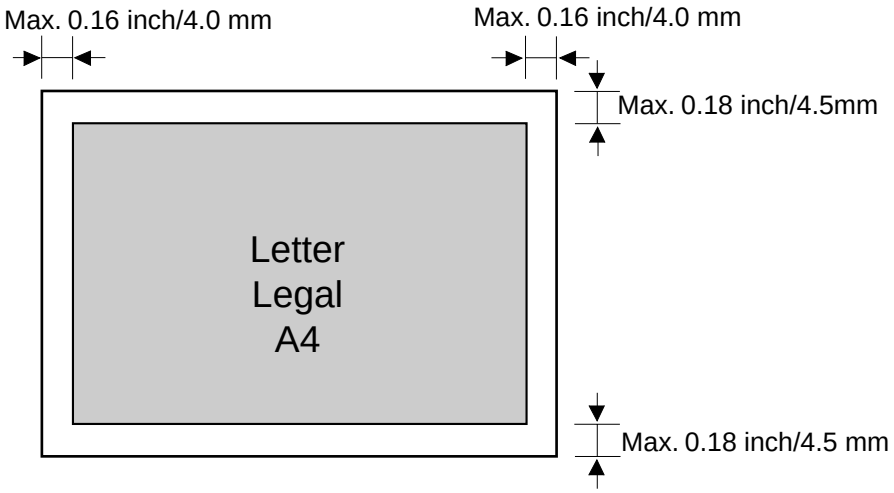


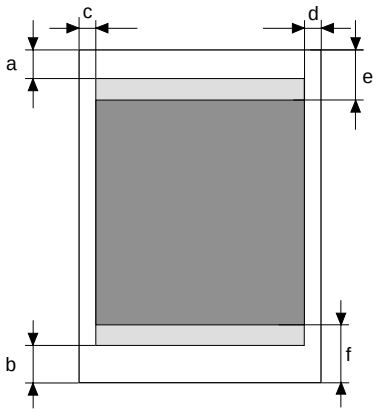
Figure 1-1 Scanning Range

2.3 Printer Specification

Printing method	Bubble-jet ink on-demand	
BJ Cartridge		
Head	BK: 320 nozzles	
	Cl: 256 nozzles	
Ink Tank		
Products name	BCI-24Black/BCI-24Color	
Product code	F47- 3481 / F47- 3491	
Ink detection	Counts the deposited dots to find out the level of ink remaining inside the tank.	
Printing speed	Black	Approx. 14 pages/minute (Canon standard pattern)
	Color	Approx. 10 page/minute(Canon standard pattern)
Printing resolution	2400 dpi × 1200 dpi	
Paper output tray stacking	Approx. 50 sheets (when using the recommended paper)	
Paper tray		
Paper supply method	ASF (Auto Sheet Feeder)	
Number of paper tray	1tray : Legal/Letter/A4 (Universal)	
Paper capacity	Max. 0.40" (10 mm) thickness	
	plain paper (Approx. 100 sheets)	
Weight	64 ~ 105 g/m^2	

Printing range

Printing range



Feed dirction

a = 3.0 mm

d = 3.4 mm (A4)
6.4 mm (Letter,Legal)

b = 5.0 mm

e = 28.0 mm

c = 3.4 mm (A4)
6.4 mm (Letter,Legal)

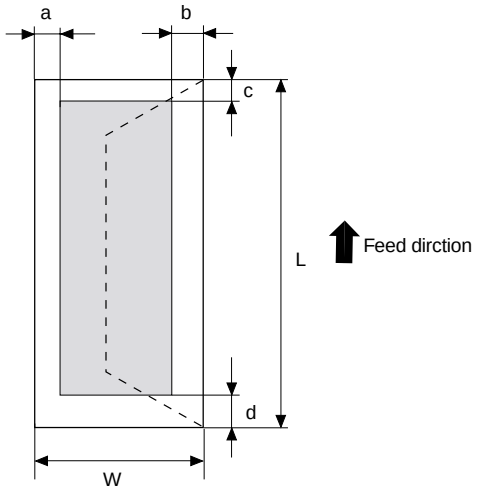
f = 26.5 mm

: Recmmended print area

: Printable area

Envelops

W x L = COM #10:9.48 x 4.17 inch/241 x 106 mm
DL:8.66 x 4.33 inch/220 x 110 mm



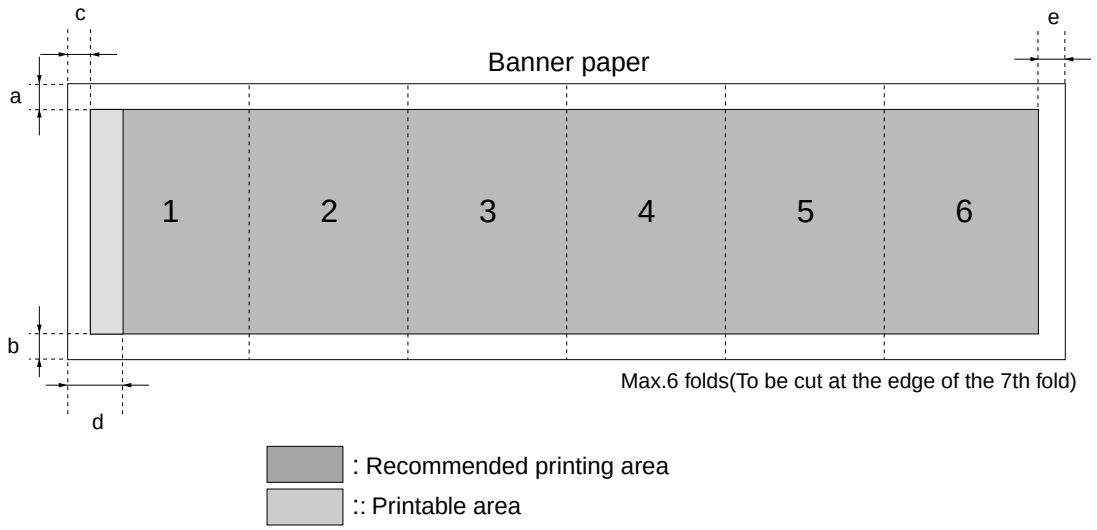
a =0.13 inch/ 3.4 mm

b = 0.13 inch3.4 mm

c =0.12 inch/ 3.0 mm

d = 1.04 inch/26.5 mm

Figure 1-2 Printing Range (1)



a=0.25 inch/6.3 mm(LTR)
0.13 inch/3.4 mm(A4)
b=0.25 inch/6.3 mm(LTR)
0.13 inch/3.4 mm(A4)
c=0.12 inch/3.0 mm
d=1.10 inch/28.0 mm
e=0.20 inch/5.0 mm

Figure 1-3 Printing Range (2)

2.4 Copy Specification

Color copy	Yes	
Multiple copy	99 copies	
Copy mode		
	Black & white	DRAFT, TEXT, PHOTO
	Color	FAST, NORMAL, FINE
Copy resolution		
	Black & white	600 dpi × 600 dpi
	Color	1200 dpi × 1200 dpi
Copy magnification ratio	25~400%	
Fixed ratio	A4 → LTR, LGL → LTR, 4 × 6 inch → LTR	
Copy mode	2 on 1	
	Image repeat	
	Borderless copy	
	Mirror image	
	Entire image	

2.5 Photo print Specification

Interface	Card slot
Compatible memory cards	Compact flash, Smart media, Memory stick, SD memory card, Multimedia card, Flash ATA card PCMCIA Type II
Printing mode	Index All frames Single frames Frame range DPOF VIVID photo print Print photo date

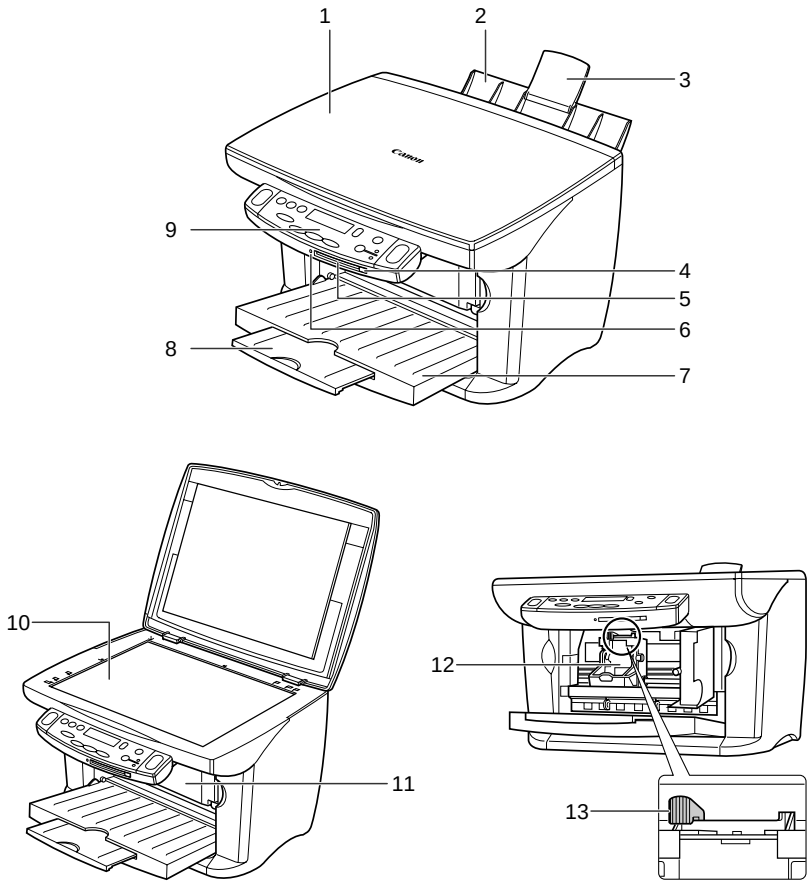
2.6 Function

Memory backup	
Backup contents	User data, Service data
Backup IC	256 kbit SRAM for control
Backup device	Lithium battery 3.0V DC/220 mAh
Battery life	Approx. 5 years
Service report	
System data list	
System dump list	
Display	2 row × 20 digits

3. OVERVIEW

3.1 External View

Main components of the machine

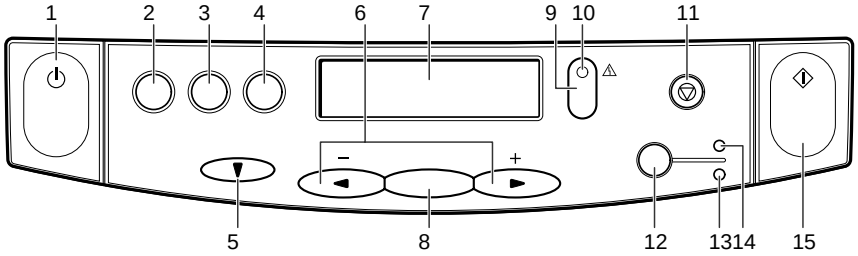


1 Document cover
2 Multi-purpose tray
3 Tray extension
4 [Eject] button
5 Card slot
6 Indicator light
7 Paper output tray
8 Tray extension
9 Operation panel
10 Platen glass
11 Inner cover
12 Printhead holder
13 Paper thickness lever

Figure 1-4 External View

3.2 Operation Panel

Operation panel of the machine



1 [ON/OFF]key
Turns the machine on and off (keep pressed for a brief interval).
Before turning on the machine, make sure the document cover is closed.

2 [Copy] key
Switches the machine to copy mode.

3 [Scan] key
Scans a document to your computer according to the action selected.

4 [Photo Print] key
Switches the machine to photo card print mode.

5 [Menu] ▼ key
Accesses the settings to customize operation of your machine.

6 [◄ (-)] and [► (+)] keys
Scroll through selections, and increase or decrease the number of copies or the photograph file number.

7 LCD
Displays messages and selections, and prompts during operation.

8 [Set] key
Selects or confirms settings.

9 [Resume] key
Resumes an operation after an error is corrected.

10 Alarm light
Blinks when an error occurs or when the machine needs attention.

11 [Stop/Reset] key
Cancels operations and returns the machine to standby mode.

12 [Color/B&W] key
Sets the machine for color or black & white copying.

13 B&W light
Lights when black & white copying is selected.

14 Color light
Lights when color copying is selected.

15 [Start] key
Starts operations.

Figure 1-5 Operation Panel

3.3 Consumables

3.3.1 Ink cartridge

NOTE

- For optimum printing results and to avoid printing problems, Canon recommends that you only use the Canon Ink Tanks described in this guide.

Figure 1-6 Consumables

3.3.2 Print media

Recommended print media and requirements

The following print media is recommended for use with your machine. Please be sure to follow the guidelines and meet the requirements when loading print media in the multi-purpose tray.

Plain Paper

Size: Letter (8 1/2 × 11 in./215.9 × 279.4 mm)
Legal (8 1/2 × 14 in./215.9 × 355.6 mm)
A4 (8 1/4 × 11 3/4 in./210 × 297 mm)
Weight: 17–28 lb. (64–105 g/m²)
Quantity: Approx. 100 sheets (20 lb. or 75 g/m²) or maximum stack height of 3/8 in. (10 mm)
Paper thickness lever position: Left
Use for: Printing from your computer/copying/photo printing

- The machine supports the above paper sizes in portrait orientation.
- You can use regular copier paper, cotton bond paper, or typical letterhead.
- Your machine does not require special ink jet paper.
- Legal-size paper can only be used when printing from your computer.

Envelopes

Size: U.S. Commercial No. 10 (9 1/2 × 4 1/8 in./241 × 105 mm)
European DL (8 5/8 × 4 3/8 in./220 × 110 mm)
Quantity: 10 envelopes
Paper thickness lever position: Right
Use for: Printing from your computer

- You may be able to load other envelope sizes, but Canon cannot guarantee consistent performance on these.
- Do not use the following types of envelopes since they may cause problems:
  – Envelopes with windows, holes, perforations, cutouts, double flaps, pressure seals, and peel-off sealing strips.
  – Envelopes with letters enclosed.
  – Sealed envelopes
- Remove the envelopes from the paper output tray before the count reaches 10.

BubbleJet Paper LC-301

Developed for high quality printing with minimal or no smearing when in contact with water or damp surfaces. This specially coated paper produces bright and vivid colors and stands up to normal office highlighters.

Size: Letter, A4

Quantity: Approx. 100 sheets (20 lb. or 75 g/m^2) or maximum stack height of 3/8 in. (10 mm)

Paper thickness lever position: Left

Use for: Printing from your computer/copying/photo printing

High Resolution Paper HR-101N

Designed to produce near-photographic quality print output with sharp and vivid graphics.

Size: Letter, A4

Quantity: Approx. 80 sheets or maximum stack height of 3/8 in. (10 mm)

Paper thickness lever position: Left

Use for: Printing from your computer/copying

- Load the paper with the whiter side facing up.
- Remove the sheets from the paper output tray before the count reaches 50. If the paper curls, remove each sheet as it is delivered in the paper output tray.

Glossy Photo Paper GP-301/GP-301N

A high gloss, thick paper that produces the look and feel of a photograph.

Size: Letter, A4

Quantity: 10 sheets

Paper thickness lever position: Left

Drying time: 2 minutes

Use for: Printing from your computer/copying

- Remove the sheets from the paper output tray before the count reaches 10.
- Load the paper with the whiter side facing up.
- Do not use the loading support sheet included with this print media.

Glossy Photo Cards FM-101

Made from the same stock as Glossy Photo Paper GP-301, these cards allow you to print images over the entire area of the card.

Size: 4 3/4 × 8 1/2 in. (119 × 214 mm)

Quantity: 20 sheets

Paper thickness lever position: Left

Drying time: 2 minutes

Use for: Printing from your computer/copying

- Print the image so that it extends beyond the perforations and then trim off the unwanted white margins.
- Load the paper with the glossy side facing up.
- Do not use the loading support sheet included with this print media.
- Remove the sheets from the paper output tray before the count reaches 20.

Matte Photo Paper MP-101

A matte, thick paper that produces vivid color output and is waterproof. Ideal for many uses such as paper crafts, calendars, and photographs with a matte finish. You can also use this paper for borderless printing.
Size: Letter
Quantity: 10 sheets
Paper thickness lever position: Left
Use for: Printing from your computer
- Load the paper with the whiter side facing up.
- In the printer driver, select "Matte Photo Paper" as the print media type.
- Remove each sheet as soon as it is printed.

Photo Paper Plus Glossy PP-101

A thick, coated paper designed to produce a glossy finish and vivid color output. This paper is also waterproof. Suitable for printing high-quality photographs and for borderless printing.
Size: Letter, 4 × 6 in. (101.6× 152.4mm)
Quantity: 20 sheets
Paper thickness lever position: Left
Use for: Printing from your computer
- Load the paper with the glossy side facing up.
- In the printer driver, select "Photo Paper Plus Glossy" as the print media type.
- Remove each sheet as soon as it is printed.

Photo Paper Pro PR-101

A thick paper with a treated surface that enhances gloss and provides superior color reproduction. It is ideal for printing high-quality photographs.
Size: Letter, A4, 4 × 6 in. (101.6× 152.4mm)
Quantity: 1 sheet, 20 sheets (4 × 6 in./101.6× 152.4mm size)
Paper thickness lever position: Left
Drying time: 30 minutes
Use for: Printing from your computer/copying/photo printing
- Load the paper with the glossier side facing up.
- For 4 × 6 in. (101.6× 152.4mm) size paper, remove the sheets from the paper output tray before the count reaches 20. For letter- or A4-size paper, remove each sheet as soon as it is printed.

Photo Paper Pro PC-101S

Made from the same stock as Photo Paper Pro PR-101, these cards are intended for printing images that cover the entire surface of the card, without a white border. This paper is ideal for printing high quality photographs.
Size: 4 × 6 in. (101.6× 152.4mm)
Quantity: 20 sheets
Paper thickness lever position: Left
Drying time: 30 minutes
Use for: Printing from your computer
- Load the paper with the glossy side facing up.
- Remove the sheets from the paper output tray before the count reaches 20.

High Gloss Photo Film HG-201

A bright white finish film that lends striking visual power to charts, graphs, and photographic images. It creates a sharper and more vivid color output than is possible with coated paper.
Size: Letter, A4
Quantity: 1 sheet
Paper thickness lever position: Left
Drying time: 2 minutes
Use for: Printing from your computer/copying

- If the film is curled, flatten it by curling it in the opposite direction.
- Load the film with the cut corner at the upper right.

Transparencies CF-102

Produce excellent contrast, sharpness, and color, creating crisp and professional overhead presentations.
Size: Letter, A4
Quantity: 30 sheets
Paper thickness lever position: Left
Drying time: 15 minutes
Use for: Printing from your computer/copying

- Although you can print on either side of CF-102 transparencies, best results can be obtained by printing on the side toward which it curls when held by the edge.
- Remove each transparency after it is delivered being careful not to touch any surfaces. Do not allow transparencies to stack up in the paper output tray.
- When your output has dried completely, cover its printed side with a sheet of plain (not coated) paper before storing it.
- Load one sheet of plain paper as the last sheet in the stack.

Banner Paper BP-101

Specifically designed for printing one continuous sheet in a banner format. The connected sheets are divided by perforations.
Size: 8 1/2 × 11 in. (215.9× 279.4mm), A4
Maximum length: 66 in. (1676 mm)
Quantity: 2 to 7 sheets (joined)
Paper thickness lever position: Right
Use for: Printing from your computer

- You can print from two to six continuous sheets at a time.
- When tearing the banner paper, tear off one more sheet than you actually need to print. The maximum length for one print job is six sheets, so if you will be printing on six sheets, tear off a seven-sheet length.
- Load banner paper print side up.
- Ensure the ink does not stain the table or floor.

T-Shirt Transfers TR-201

Used to produce iron-on transfers
Size: Letter, A4
Quantity: 1 sheet
Paper thickness lever position: Right
Use for: Printing from your computer/copying

- Load the paper with the side that does not have green lines facing up.
- Use mirror printing to print or copy the image onto the T-shirt transfer.
- If the T-shirt transfer is curled, flatten it by curling it in the opposite direction.

General print media guidelines

- Paper types you cannot use
  Do not use the following:
  – Creased print media
  – Curled print media
  – Wrinkled print media
  – Moist print media
  – Print media that is too thin (It should be at least 17 lb. or 64 g/m^2.)
  – Print media that is too thick (It should not be more than 28 lb. or 105 g/m^2, except for Canon print media.)
  – Print media with holes (e.g. punched holes)
  – Postcards with photographs or stickers adhered to them
- Hold the print media as closely as possible to its edges and try not to touch the printing surface. Printing quality will deteriorate if the printing surface is damaged or becomes dirty.
- Do not touch the printing surface until the ink has dried.
- Some print media may curl and the printing surface may smudge if you have used a large amount of ink for printing. If this occurs, move the paper thickness lever to the right. Paper that tends to curl is not recommended for printing photographs or graphics. Use for printing mainly text.
- Do not use print media that is in bad condition (above). If the print media is curled, uncurl it before printing.
- Place the print media you have not used back into its packet and store out of direct sunlight in a place where temperature and humidity is low.
- Photo Paper Pro guidelines
  – Do not touch the printed surface until the ink is fixed (approx. 30 minutes). Colors in dark images may appear indistinct at first, but will become clearer after about 30 minutes.
  – Images may smudge if you place them in an album before the ink is completely dry. It is recommended that you allow the ink to dry for 24 hours.
  – Do not attempt to dry the ink with a hairdryer or by exposing printed sheets to direct sunlight.
  – Do not store or display printouts in hot, damp, or humid conditions. Never expose them to heat or direct sunlight.
  – Store printouts in photo albums, photo frames, or presentation binders to protect them from direct exposure to air or sunlight.
  – Do not mount printouts in an adhesive-type album as you may not be able to remove them.
  – Be aware that some types of clear plastic folders and albums may cause the edges of the paper to turn yellow.

Chapter 2

Technical Reference

1. COMPONENT LAYOUT

1.1 Parts Layout

The parts layout of this machine consists of the scanning assembly, printing assembly and printer.

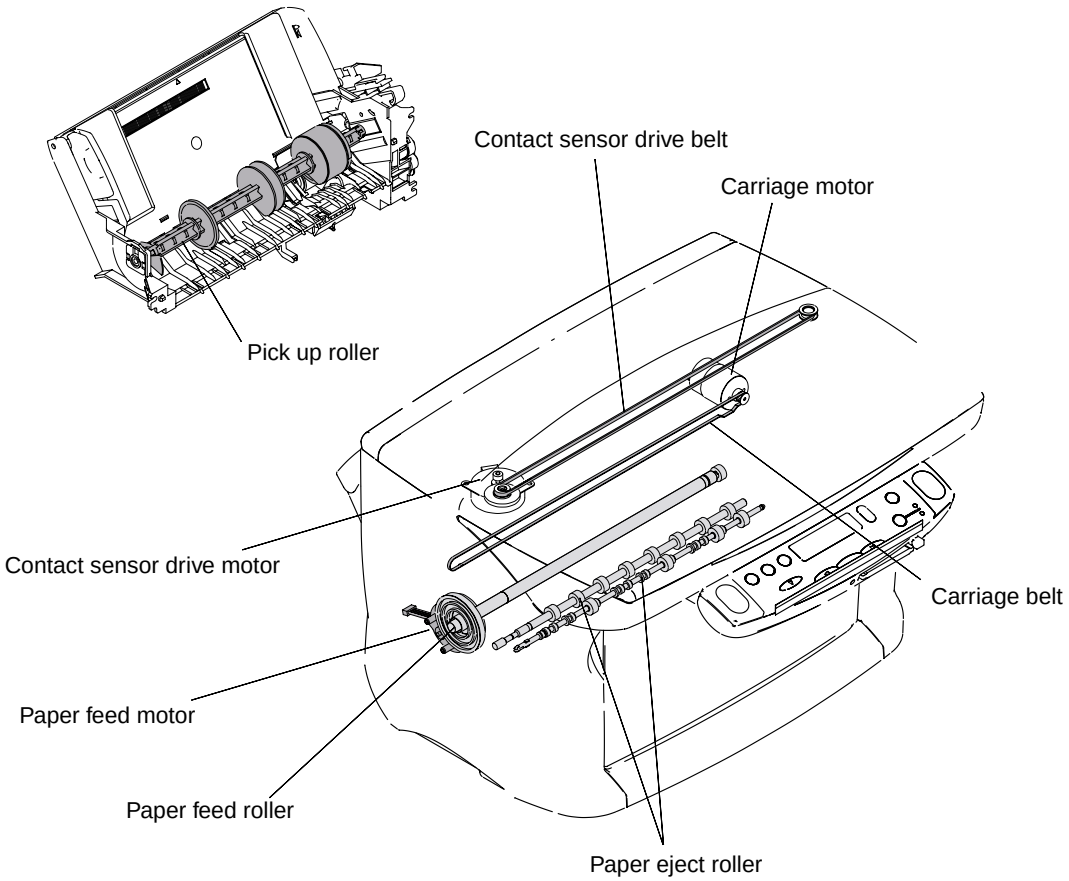


Figure 2-1 Mechanical Layout

The electrical parts are laid out as follows.

- SPCNT board ..... Operation panel control, Document scanning control, Printer control, sensor detection
- Power supply unit ..... supplies power to the units and assemblies
- OPCNT board ..... detects keyboard operation and displays machine information
- Sensor board ..... interface with SCNT board

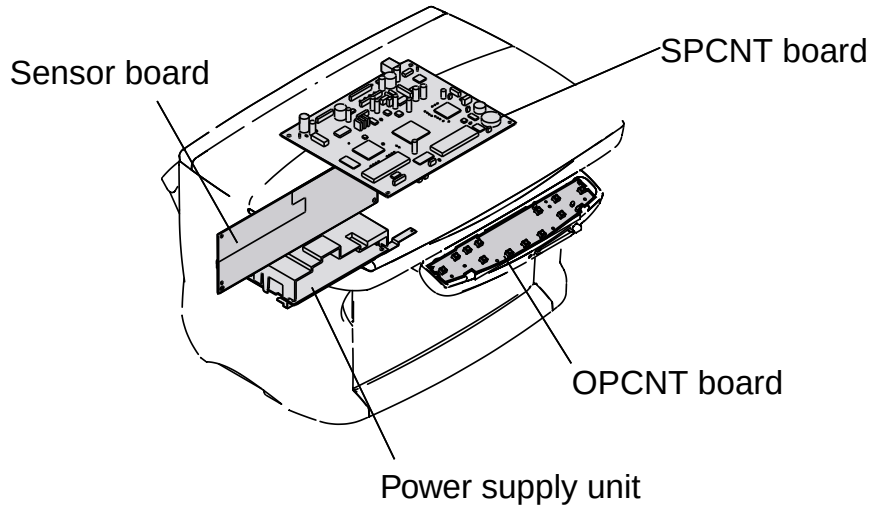


Figure 2-2 Electrical Layout

•4 sensors ..... detect unit and assembly statuses

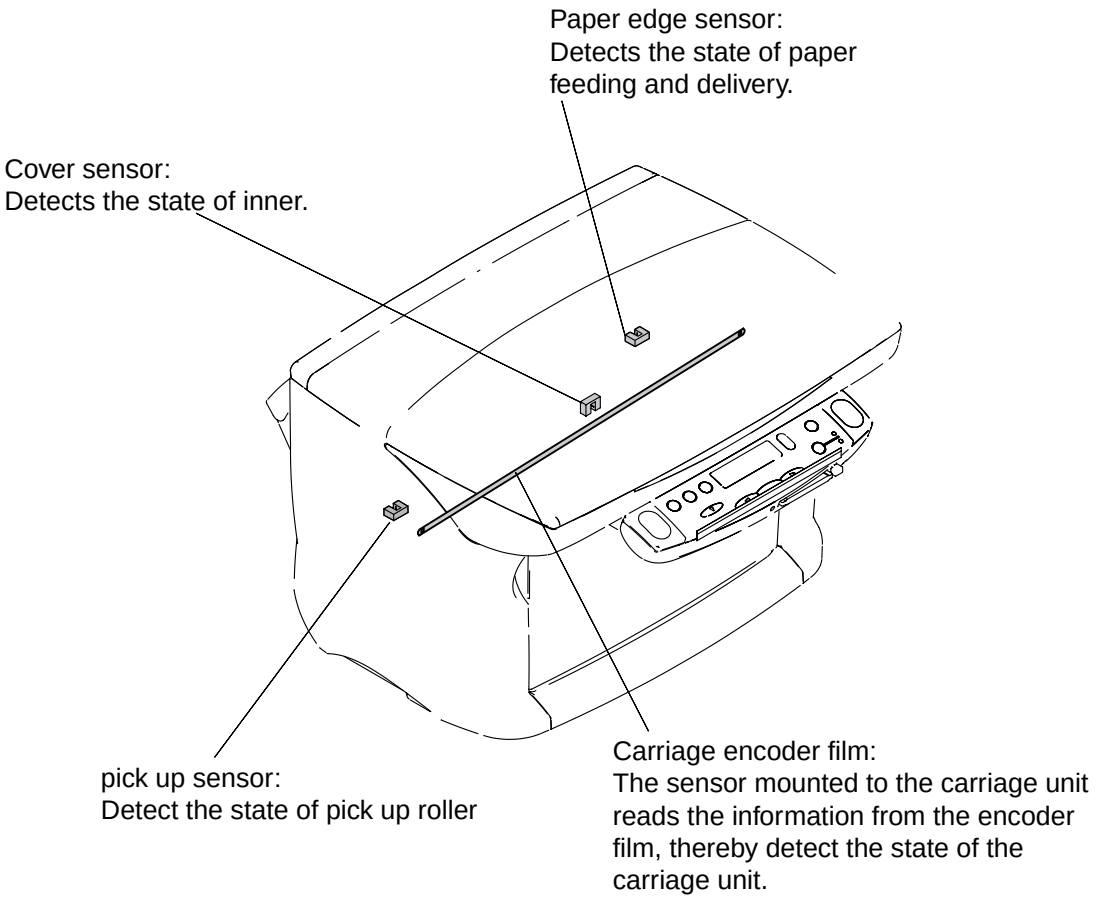

Paper edge sensor:
Detects the state of paper feeding and delivery.
Cover sensor:
Detects the state of inner.
pick up sensor:
Detect the state of pick up roller
Carriage encoder film:
The sensor mounted to the carriage unit reads the information from the encoder film, thereby detect the state of the carriage unit.

Figure 2-3 Sensor Layout

2. SCANNER MECHANISM

The scanner section scans documents that are to be copied.

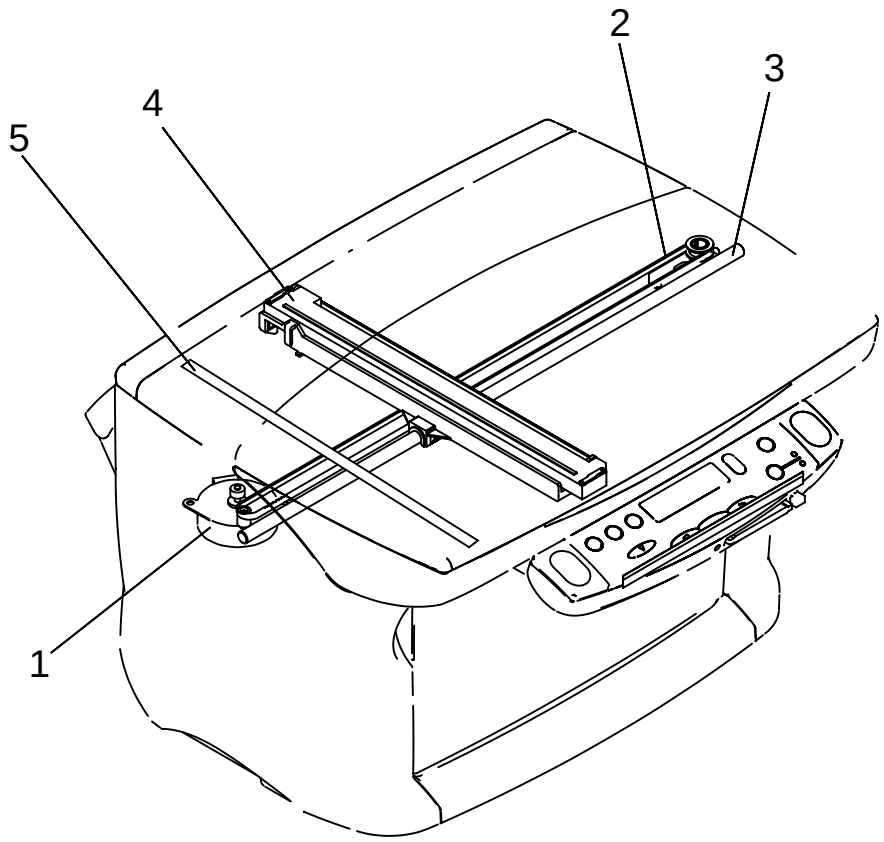


Figure 2-4 Document Feed Section

Names and function of parts

1. Contact sensor drive motor

The contact sensor drive motor is used to drive the contact sensor.

2. Contact sensor drive belt

The contact sensor drive belt is used to covey the driving force of the flatbed motor to the contact sensor.

3. Contact sensor shaft

The contact sensor shaft is used to keep the direction of the driving force of the contact sensor.

4. Color contact sensor

The color contact sensor scans the image data from the document, converts it to serial data, and transmits it to the SPCNT board as electrical signals. The color contact sensor has a scanning resolution of the 600dpi and outputs Red, Green and Blue analog image data.

5. White sheet

This white sheet is used as a whiteness reference when pre-scanning documents.

3. PRINTER SECTION

3.1 Overview of the Printer's Mechanical Parts

The printer's mechanical parts consist of the BJ cartridge, carriage, purge section, and paper feed section. Each part is explained below.

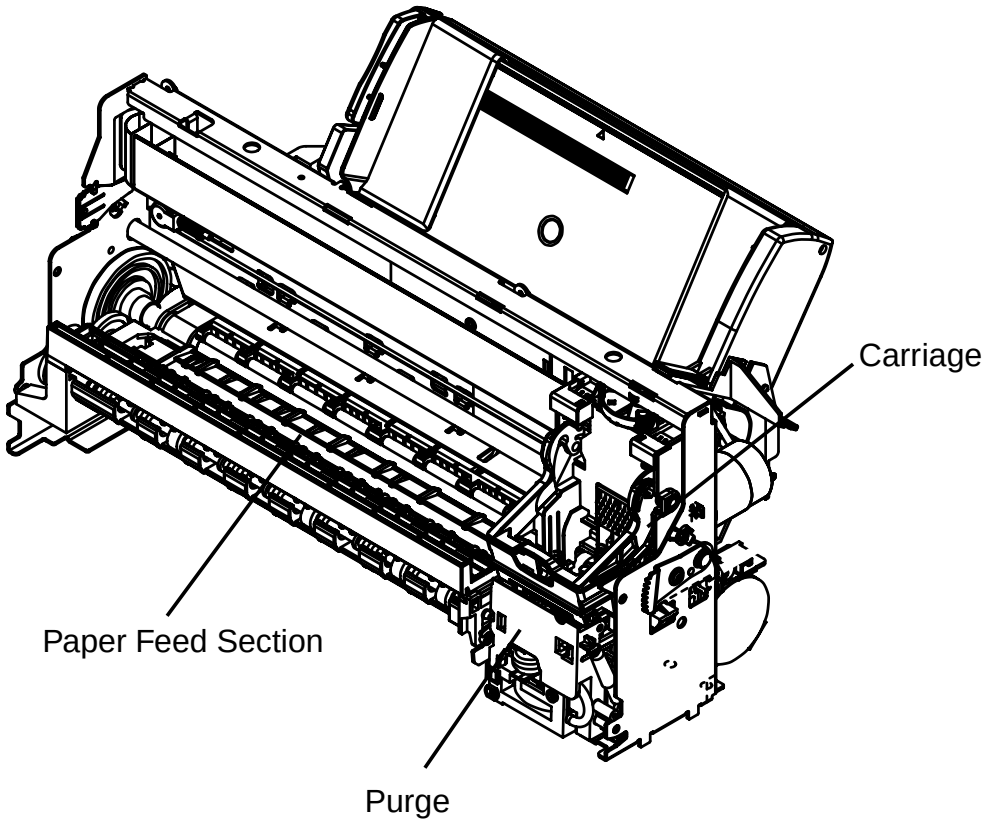


Figure 2-5 Printer's Mechanical Parts

3.1.1 Carriage

The carriage holds one BJ cartridge in place. The carriage belt driven by the carriage motor (DC motor) moves the carriage horizontally back and forth across the paper.

Regarding the carriage's position control, the initial position is detected when the carriage goes against the right wall which is the home position.

After that, the carriage position is detected by reading the pulse from the encoder film.

The paper spacing position is read from the carriage position when the carriage goes against the left wall.

3.1.2 Purge section

The purge section, driven by a dedicated purge motor, consists of the wiper, pump, cap, and carriage lock.

The wiper maintains the head face surface to ensure high-quality printing. The ink suction feature enables the ink to be readily ejected from the nozzles.

When the BJ cartridge is not in use, the nozzles are protected by a cap, and the carriage is locked in place.

The motor's running direction controls the ink suction operation or capping/wiping/valve open/closing operation.

3.1.3 Paper feed section

The paper feed section consists of the paper feed components, paper transport section, and paper discharge section.

Paper feed

Paper is picked up automatically from the auto sheet feeder.

The feeder is designed to accommodate various sizes of paper (as large as LGL), picking up individual sheets and forwarding them to the feeding block.

Paper transport section

The paper feed section, driven by the paper feed motor, keeps the sheet of paper flat and horizontal on the platen and rotates the feed roller to move the paper horizontally to and beneath the print head.

Paper eject section

After printing, paper is ejected onto the discharge tray by the eject rollers.

After the sheet of paper leaves the paper feed rollers, the eject rollers take over to eject the paper.

3.2 Paper Feed Section

3.2.1 Paper feed components

The auto sheet feeder separates recording paper by rotating the separation roller in the opposite direction of pickup. Compared with other auto sheet feeders, it shows better separation performance.

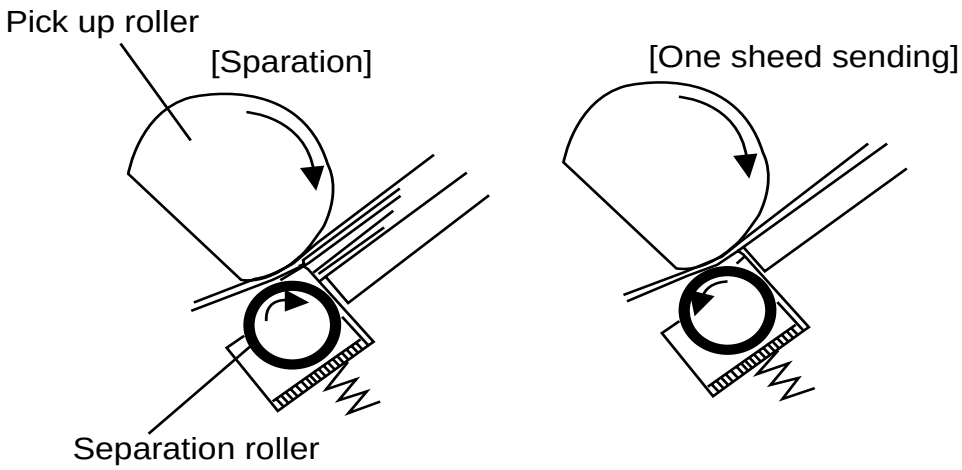


Figure 2-6 Paper Feeding

The pickup roller receives a rotating force in pickup direction, whereas the separation roller receives it in the opposite direction of pickup through a torque limiter. The rotating force acting on the separation roller is weaker than that acting on the pickup roller, causing it to rotate in pickup direction.

As long as pickup is normal, the rotating force acting on the separation roller is weaker than the friction between the recording paper and the separation roller, thereby permitting the separation roller to forward the paper to the feeding block.

If double-feeding occurs, however, the force acing on the separation roller will be stronger than the friction between the paper and the separation roller, thus rotating the separation roller in the opposite direction of pickup and, consequently, forcing the second sheet back to the recording paper tray and forwarding the 1st sheet to the feeding block.

3.2.2 Paper transport section

In the printing block, the gap between print paper and the print head is kept at a specific distance by forcing the paper against the platen between the pressure roller and the paper feed roller and also between the spurs and the eject roller.

When the paper has been moved as far as the print start position, printing starts on the platen.

3.2.3 Paper discharge section

After printing has taken place, the paper is discharged by the drive of the eject roller with the sharp-edged spurs forcing themselves on the printed side against the platen, while making sure that the printed face will not be soiled.

The delivery block consists of an eject roller and spurs. As soon as printing ends, the paper moved by the work of the paper feed roller and the pinch roller is discharged using the rotation of the eject roller and the spurs.

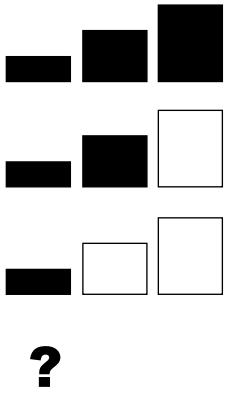
3.3 Ink residual quantity detection

The F20 is not equipped with a sensor used to detect the level of ink remaining in its tank.

The absence of such a sensor is made up for by counting the dots in a deposit. When these dots reach a specific number, the LCD will indicate a message alerting the user that the ink is running out and prompting replacement of the tank, which must be replaced when the output starts to show fuzzy images or becomes blank.

When the ink tank has been replaced, the LCD indicates a message, asking if the ink tank has been replaced. Select 'Yes' in response. (Selecting 'No' will do away with resetting the ink counter, which prevents correct detection of the level of remaining ink.)

The level of remaining ink may be checked by selecting 'INK VOLUME' from a menu.



Approx. 100% to 30% full

Appros. 30% full

0%(empty)

?

Ink counter not reset

Figure 2-7 Indications of the Ink Level

3.4 Purge Section

3.4.1 Purge section functions

In order to maintain good printing quality, the purge section maintains the BJ cartridge's nozzles. The purge section's functions consist of capping and cleaning.

a) Capping

The purge unit's cap is pressed against the print head's face to protect the nozzles from dust, etc., and to prevent the nozzles from drying out. To prevent the capping position from shifting, the carriage is locked in place at the same time.

When the cap is open while the printer is on standby for printing and a certain period of time elapses , the print head will be capped automatically. You can also cap the print head by pressing the *ON/OFF button* to turn off the printer.

b) Cleaning

Cleaning executes the following operations:

Wiping: Paper residue and dried ink on the print head's face plate are wiped off.

Suction: The ink is sucked out of the print head to refresh the nozzles with new ink.

Maintenance jet: To eliminate any air bubbles in the head's nozzles and to remove waste particles near the nozzle openings, ink is ejected from the nozzles onto the cap and maintenance jet receptacle.

Cleaning is performed at the times below to ensure that the head produces high-quality printing.

3.4.2 Purge section components

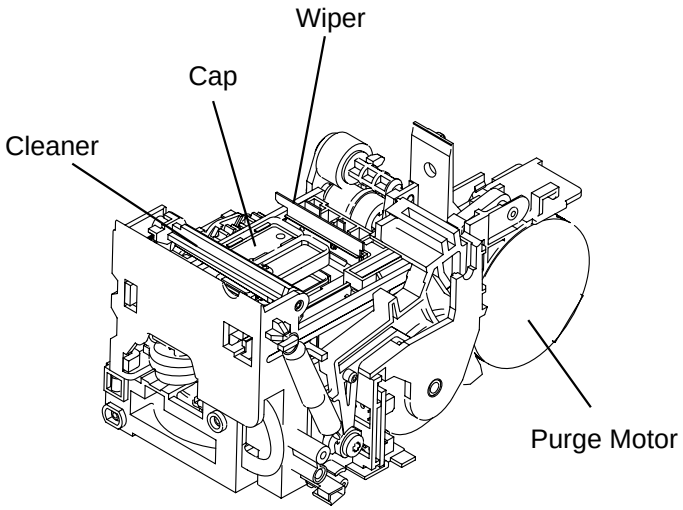


Figure 2-8 Purge Section Components

a) Purge driving motor

The purge motor drives the wiper, carriage lock, and pump. It is a constant-voltage motor operating with a 1-2 phase drive.

b) Wiper

The wiper consists of a wiper and wiper cleaner.

The wiping operation is executed while the carriage is fixed at the purge section. It wipes the print head's nozzle array in a vertical motion.

c) Cap

The rubber cap protects the print head (capping operation) and sucks out (pumping operation) the ink in the cap.

When the carriage moves to the capping position, the cap is pressed against the print head's face plate.

There is a different cap for the black and color print heads.

An ink tube connects the rubber cap to the pump and air valve.

3.5 Ink Suction Amount in the Cleaning Mode

The machine has five cleaning modes (A to G). Cleaning is executed for maximum effectiveness and efficiency. The cleaning operation is selected depending on the respective condition. The ink suction operation differs depending on the condition at three occasions: Operation by the user, cover open/closing, and before printing starts.

- Operation by the user: Manual ink suction (Including printer driver operation)
- Cover open/closing: Cleaning at printer arrival
- Before printing starts: Other than manual suction

Mode			Suction Amount (g)	Precondition*
Cleaning A	All colors	Bk+Cl	0.12+0.135	Dot count suction, Manual suction (All colors) *2, timer suction (Time not set)*3
	Bk	Bk	0.12	Dot count suction, Manual suction (Bk) , timer suction (60*4 ~ 336 h)
	Cl	Cl	0.135	Dot count suction, Manual suction (Cl) , timer suction (120 ~ 336 h)
Cleaning D	All colors	Bk+Cl	0.24+0.28	Tank replacement after soft power ON (All colors)
	Bk	Bk	0.24	Tank replacement after soft power ON (Bk)
	Cl	Cl	0.28	Tank replacement after soft power ON (Cl)
Cleaning E	All colors	Bk+Cl	0.36+0.28	Long timer suction (336 h ~)
Cleaning F	All colors	Bk+Cl	0.36+0.42	When print head is replaced, at printer arrival
Cleaning G	All colors	Bk+Cl	1.5+0.42	Head refreshing

*1 If the preconditions overlap, the stronger suction will take priority.
Cleaning A < Cleaning D < Cleaning E < Cleaning F < Cleaning G

*2 In the case of the boxed preconditions, the suction starts right after the precondition is executed. For other preconditions, suction is executed right before the printing starts or during printing.

*3 Printing of EEPROM contents, etc., with the printer alone.

*4 Purging operations will be performed after 24 hours only the first 5 times, after which purging will occur at 60 to 336 hours intervals.

When checking the functions of the purge unit, measure the suction amount for a manual suction.

Chapter 3

Assembly and Disassembly

1. ATTENTION TO BE PAID DURING ASSEMBLY/ DISASSEMBLY

1.1 Safety Cautions

Electrical shock

In order to prevent any risk of electrical shock, always be sure to check that the power cord and modular jack have been removed. Also, remove all cables connecting to the computer. When conducting service that requires the main unit to be powered on, be sure to wear some kind of earthing, such as a wrist strap, etc. Otherwise, there is a danger of conduction and electrical shock.

Parts which are generally likely to cause electrical shock are as follows.

- Power supply unit primary (supplied with AC voltage)
- Telephone line primary
- LBP engine high voltage contacts (for high voltage during developing and transfer)

High temperature

In order to prevent burns during disassembly, allow at least ten minutes, after the power has been switched off, for the high temperature components to cool down.

General high temperature components are as follows.

- Motors
- Power supply unit
- Elements on driver ICs, etc., on PCBs (in particular, ICs with heatsinks)
- BJ cartridge aluminium plate (for BJ cartridge engine models)
- Fixing unit and peripheral covers (for LBP engines)

Battery Replacement

The batteries must be replaced correctly to avoid explosion. Do not replace any battery with one not indicated for the machine, ie., use one of the same type or equivalent. Be sure to dispose of used batteries according to local laws and regulations.

Fire

It is dangerous to throw lithium batteries and parts and components containing flammable substances, such as cartridges, etc., into fire. Such parts and components must be disposed of in accordance with local laws and regulations.

Ignition

When using solvents such as alcohol, etc., while conducting service, there is a danger of fire igniting from heat from internal circuitry and from sparks. Before using any such solvents, be sure to switch off the power and allow time for high temperature parts to cool down. Make sure that there is sufficient ventilation when working with solvents.

Movable parts

In order to prevent accidents with movable parts, be sure to remove the power cable when conducting service that requires disassembly. Also, take care that personal accessories and hair, etc., are not caught in any moving parts.

1.2 General Cautions

Damage due to electrostatic discharge

This machine contains contact sensors and printed circuit boards that use ROMs, RAMs, custom chips and other electronic components that are vulnerable to damage by electrostatic discharge.
Be careful to avoid any damage from electrostatic discharge when conducting service that requires disassembly.

Static electricity warning

Electrostatic discharge can destroy electronic components and alter electrical characteristics. Plastic tools and even your hands, if they are not earthed, contain sufficient static electricity to damage electronic components.

The following materials may be used as countermeasures against electrostatic discharge:
- an earthed, conductive mat,
- an earthed wrist-strap,
- crocodile clips for the purpose of grounding metallic parts of the main unit.

For service conducted on the user's premises, etc., where such countermeasure materials are not available, the following countermeasures may be employed.
- Use anti-static bags for the storage and carrying of PCBs and electrical elements.
- Avoid silk and polyester clothing and leather soled shoes, favouring instead cotton clothes and rubber soled shoes.
- Avoid working in a carpeted area.
- Before beginning the work, touch the grounded earth terminals of the main unit in order to discharge any static electricity.
- Use a wrist-strap and earth the metal parts of the main unit.
- PCBs and electrical elements must lifted around the edges and their terminals must not be touched.

Caution against electrical shock while working with power on

In cases where service must be carried out with power on, via a connected power cable, be sure to wear an anti-static wrist-strap or other earth, in order to prevent an electrical path being created through your body.

Application of grease

Grease must not be applied to any parts that are not so designated. If grease comes into contact with the rubber cap of the purge unit or wire, the BJ cartridge nozzle may become blocked and the cartridge rendered unusable. Also, never use any other than the specified type of grease. Otherwise, plastic parts and rubber parts may melt or be otherwise deformed.

Attaching and removing cables

Attaching and removing cables with the power still on may cause breakdowns and should be avoided. In particular, flat cables are likely to cause short circuits. When attaching or removing cables, always be sure to turn the power off.

1.3 Product-Inherent Cautions

Prevention of ink-soiling

Be careful when handling the BJ ink cartridge nozzle, the ink pad, head cap, head wiper and waste ink pad. Residual ink may soil the main unit, working surfaces, your hands and clothes, etc. The ink is water-soluble, but because it contains pigments, it will not wash out of clothes.

The ink does not contain any substances that are harmful to humans, but does contain organic solvents (isopropyl alcohol 67-63-0, diethylene glycol 111-46-6, glycerin 56-81-5 and ethylene glycol 107-21-1). If the ink should accidentally get into someone's eyes, rinse the affected eye with plenty of clean water and seek medical attention. If a large quantity of ink is accidentally swallowed, seek medical advice immediately. In such a case, let the doctor know exactly what is written on the BJ cartridge label.

Conductivity of the ink

The ink used in the BJ cartridge is conductive. This means that, if the ink leaks, mechanical parts should be wiped with a dampened paper towel or similar and electrical circuits wiped with tissue paper so that all ink is removed from below the IC chips.
If power is switched on while ink is leaking on the electrical circuits, the circuitry may short out and be damaged. If ink is leaking, the power must be switched off.

1.4 Action in the Event of Abnormality (All Clear)

In the event of extreme noise or shock, etc., in very rare cases, the display may go out, and all the keys become inoperable. In that case, perform an All Clear. This operation returns all values and settings to their default settings. However, as all settings, such as received images and user data, service data, etc., will be re-initialised, be sure to note down any settings that you will need to re-enter later.

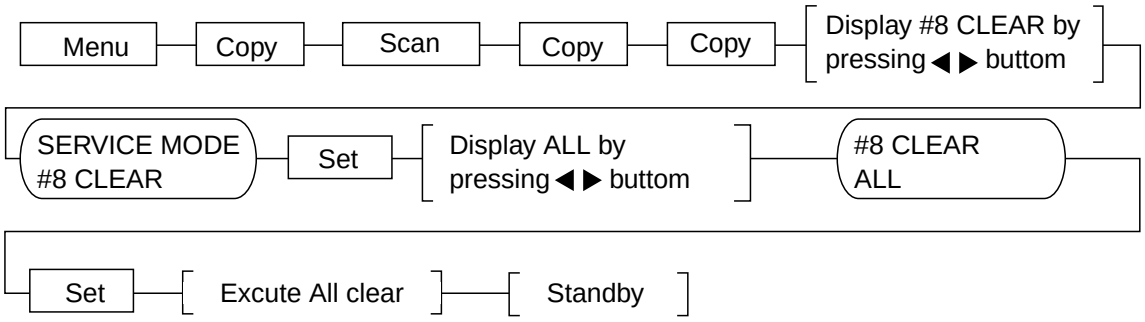


Figure 3-1 All Clear Operation

While waiting to return to the ready state after executing **"All clear"**, please do not press the Stop button. Doing so may cause a malfunction afterwards.

1.5 Transporting the machine

If you must transport the machine as when returning it after repair work, be sure to perform the following work:

(a) Mount the BJ cartridge (printer head) to the carriage.

(b) Turn off the printer so that the carriage locks at the home position.

If the BJ cartridge (print head) is not on the carriage, the ink may dry and harden. So even while transporting the printer, leave the BJ cartridge mounted on the carriage. Also, if the carriage is not locked at the home position, it will move while the printer is being transported. This may strain the paper feed encoder film.

2. ASSEMBLY / DISASSEMBLY

2.1 Disassembly Work-Flow

The work-flow for the disassembly of the main units is as follows. In order to replace parts, you need to confirm which parts have to be removed. Numbers in parentheses indicate the disassembly number.

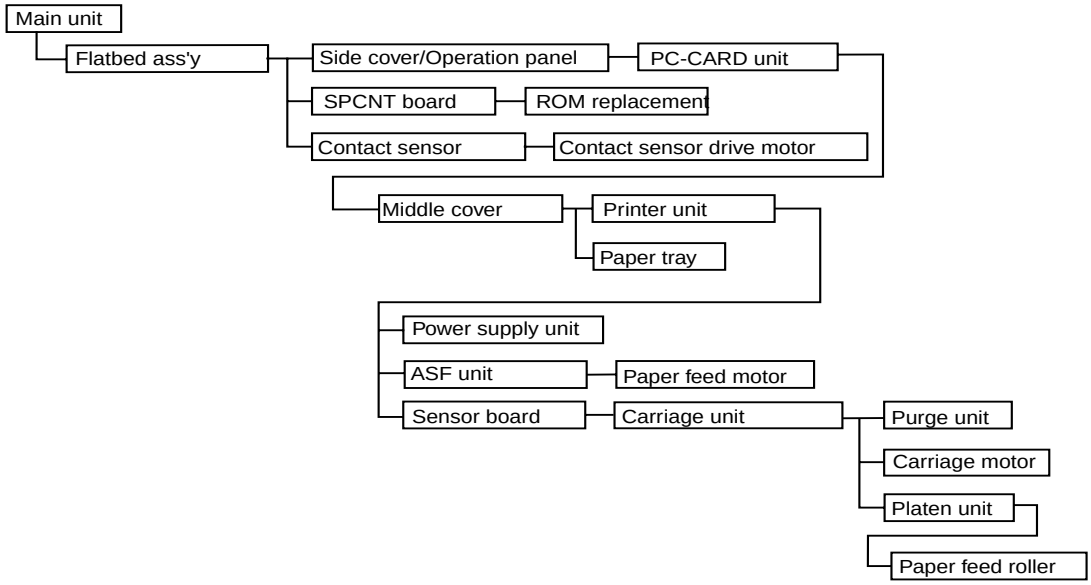


Figure 3-2 Disassembly Work-Flow

2.2 Disassembly Procedure

Disassembly 1. Flat bed ass'y

(1) Lift the pressure plate to remove.
(2) Remove the 9 screws (a), and detach the flat bed ass'y
(3) Disconnect 2 cable (b).
(4) Remove the screw (c), and detach the grounding wire.
(5) Remove the left and right side cover.

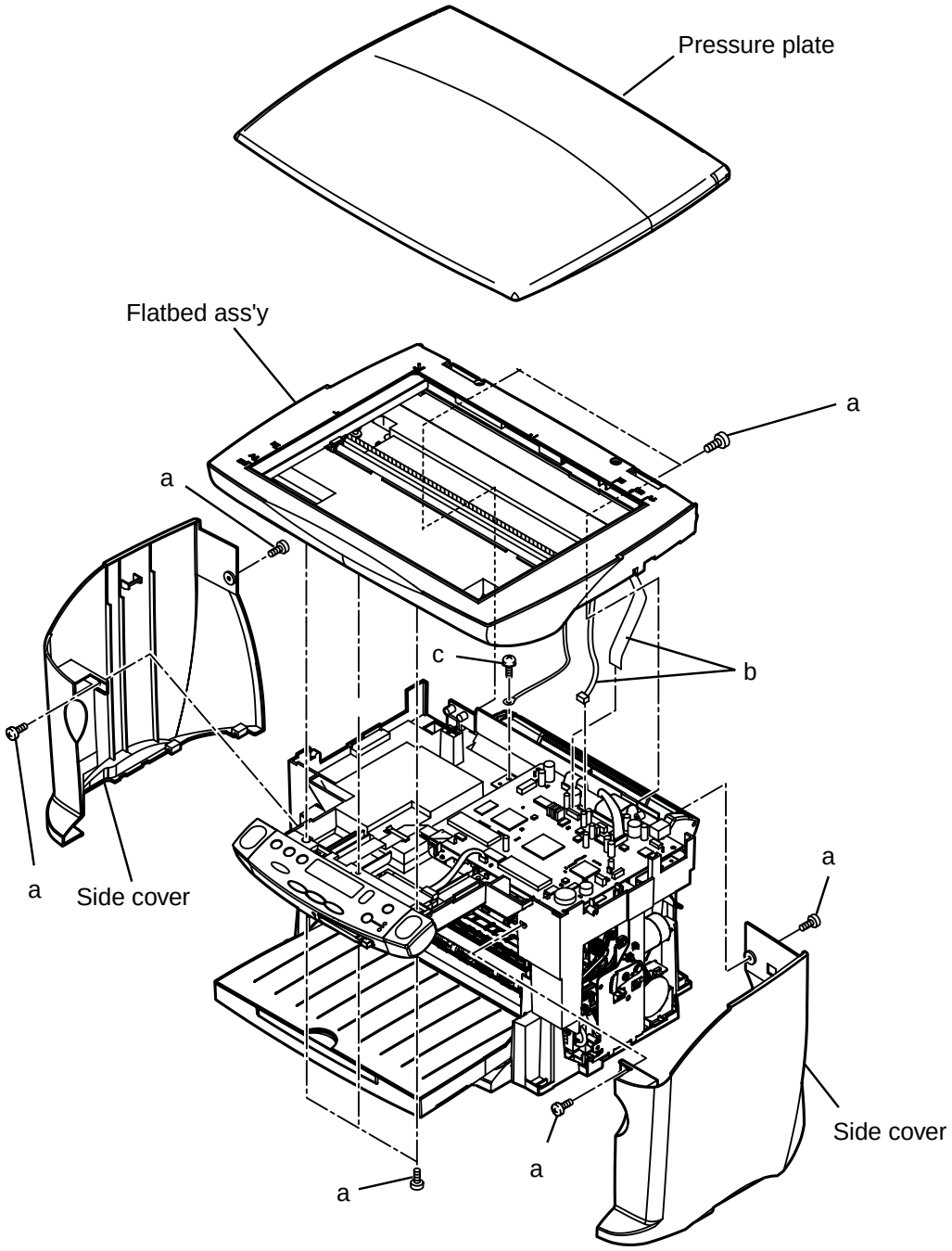


Figure 3-3 Disassembly 1

Disassembly 2. Side cover, Operation panel

(1) Perform Disassembly 1 to remove the Flat bed ass'y.
(2) Disconnect cable (b) from the SPCNT board.
(3) Remove the 2 screws (c), and detach the operation panel.

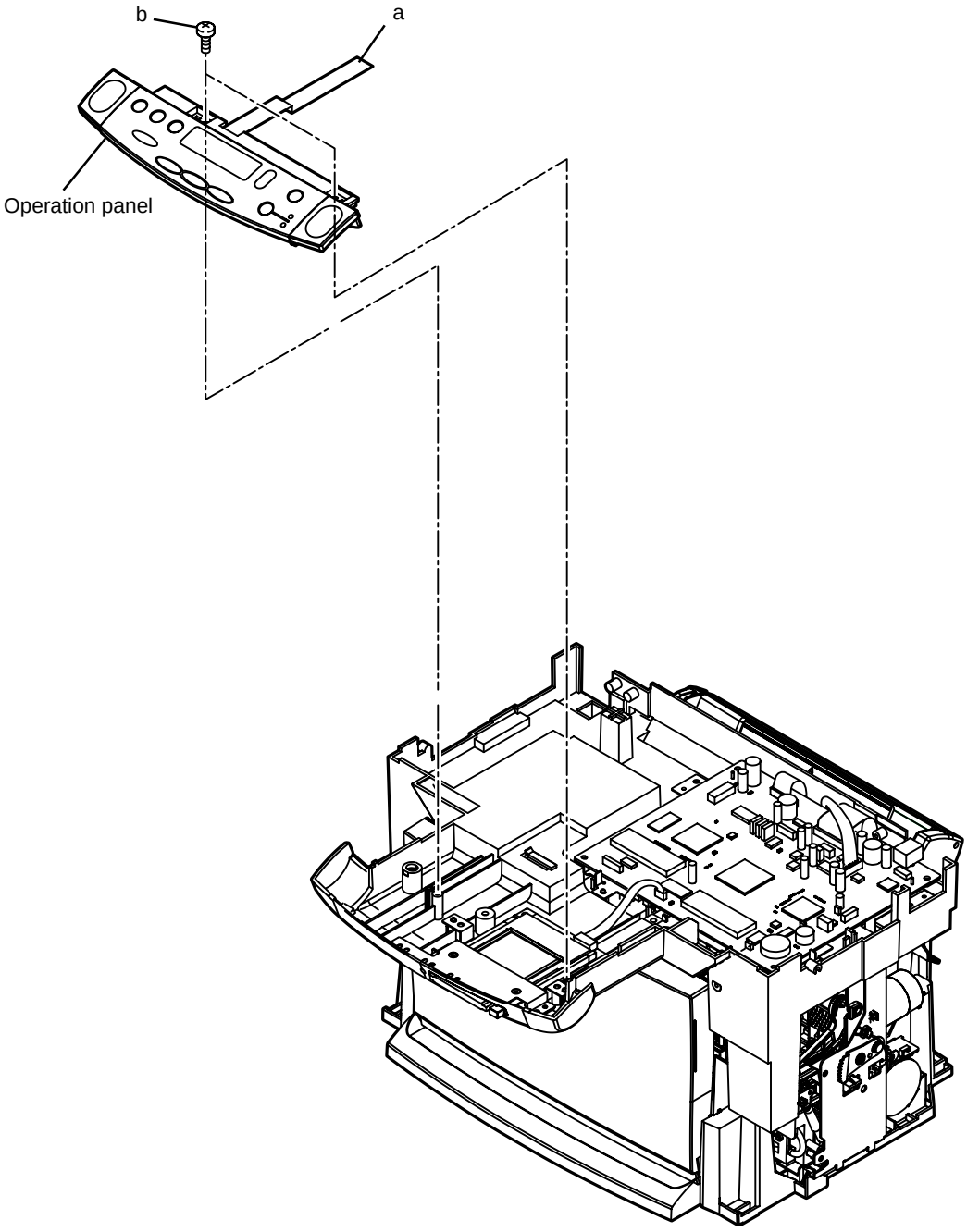


Figure 3-4 Disassembly 2

Disassembly 3. SPCNT board

(1) Perform disassembly 1 to detach the flat bed assembly.
(2) Disconnect all cables from the SPCNT board.
(3) Remove the 4 screws (a), and detach the SPCNT board.

Disassembly 4. PC-CARD unit

(1) Perform disassembly 2, and detach the Operation panel.
(2) Remove the 2 screws (b), and detach the plate.
(3) Remove the 4 screws (c), and detach the PC-CARD unit.

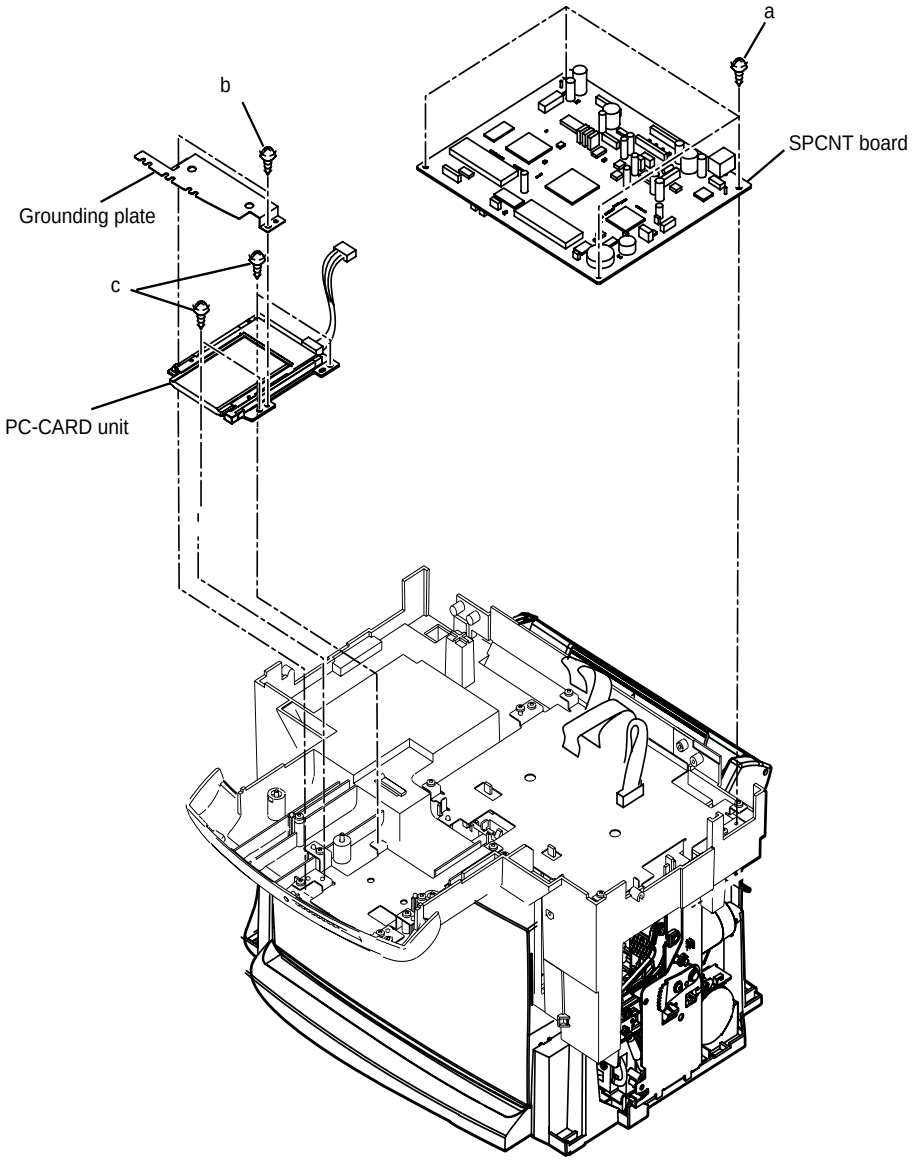


Figure 3-5 Disassembly 3 and Disassembly

NOTE

Caution When Replacing SPCNT Board

To replace the SPCNT board, perform the following:

a) Caution before replacing

You will need to execute 'all clear' at the end of replacement. As necessary, print out the following data:

a-1) Image Data in Image Memory

The image data stored in image memory will be lost when the power is turned off. Before turning off the power, check to make sure that all images have been printed out.

a-2) Data on the Amount of Waste Ink in the Absorbent and the Print Position Adjustment Data

The EEPROM on the SPCNT board is used to remember the amount of waste ink collected by the absorbent and print position adjustment data. Be sure to replace the waste ink absorbent at the same time whenever you are replacing the SPCNT board. After replacement of the board, be sure also to enter '0' as the amount of waste water in the new waste ink absorbent and adjust the print position.

a-3) Service reports

Select service mode, and select 'SERVICE REPORTS' using the **</>** button. Press the **Set** button; then, select the type of list to generate using the **</>** button.

b) Replacing the SPCNT Board

(1) Remove the existing board.
(2) To prevent exhaustion of the battery otherwise occurring in storage, the jumper plug (JP3) of the service SPCNT board (if new) is not shorted. Be sure to short the plug before use.
(3) Mount the new SPCNT board, and put back all parts you may have removed.
(4) Turn on the power, and execute 'all clear'. For details, see the instructions to follow in response to an error (See this Chapter 1.4 Action in the Event of Abnormality (All Clear)).
(5) After executing 'all clear', enter the data you have previously printed out as necessary (battery backup).

Disassembly 5. Middle cover ass'y

1) Perform disassembly 4.
(2) Remove 3 screws (a), and detach the PC-CARD holder.
(3) Remove the 4 screws (b), and detach the SPCNT holder.
(4) Remove the 4 screws (c), and detach the middle cover.
(5) Remove the paper tray unit.

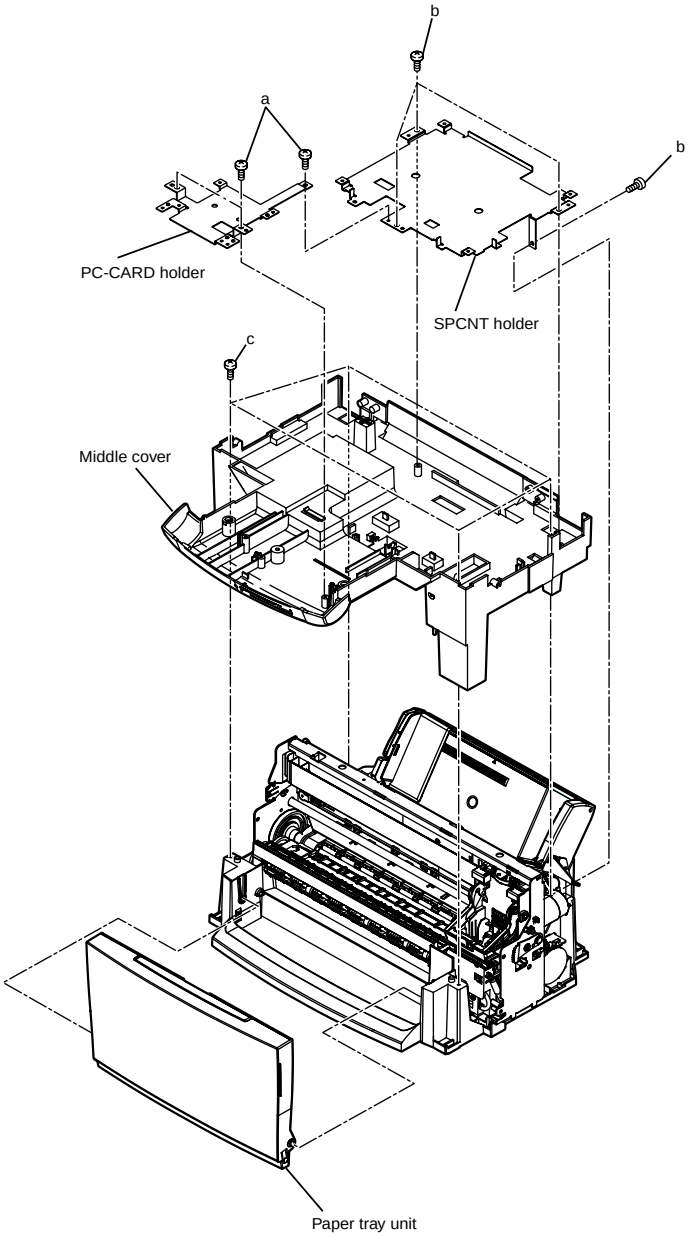


Figure 3-6 Disassembly 5

Disassembly 6. Printer unit, Ink absorber

(1) Perform disassembly 5, and detach the middle cover.
(2) Remove the 3 screws (a), and detach the printer unit.
(3) Remove the 2 ink absorbees.

Disassembly 7. Power supply unit

(1) Perform disassembly 6, and detach the printer unit.
(2) Free the 2 claws (b), and detach the power supply cover.
(3) Remove the screw (c), and detach the power cord cover.
(4) Remove the 2 screws (d), and detach the power supply unit.

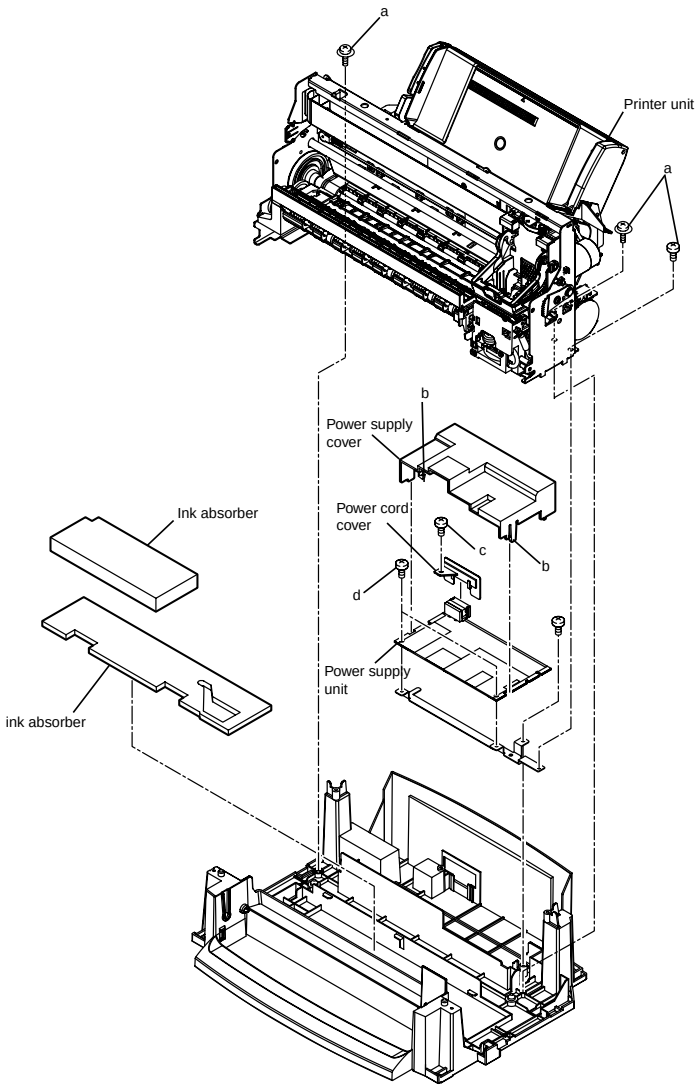


Figure 3-7 Disassembly 6 and Disassembly 7

NOTE

Replacement of waste ink absorbers

The waste ink absorbers are designed to sop up any excess ink ejected during the cleaning operation or during ink squirting for maintenance, in order to maintain the good printing quality of the BJ cartridge. The volume of ink absorbed is counted and these data stored in the EEPROM on the SPCNT board. Once the volume is judged to have reached 100%, the message **"CHECK PRINTER"** (error code ##343) will be displayed, and printing will stop, in order to ensure that the volume of ink absorbed does not exceed the allowed limit. To clear this error, you need to replace the waste ink absorbers and reset the waste ink volume counter. Refer to Chapter 4, 4.2.2 error code, Action for ##343, for details on how to reset the waste ink volume counter.

Disassembly 8. Contact sensor

(1) Perform disassembly 1, and detach the flat bed ass'y.
(2) Remove the 2 screws (a).
(3) Free the 5 claws (b), and detach the scanner cover. At this time, take care not to drop the document glass.
(4) Remove the spacer from the contact sensor.
(5) Disconnect the cable (c), and detach the contact sensor from the contact sensor holder.

Handling the contact sensor

Be careful not to scratch or soil the glass surface of the contact sensor. Any such scratches or dirty marks may lead to image defects, such as vertical streaks, etc., on the scanned image.

Caution when replacing the contact sensor

When replacing the contact sensor, the CS LED light-on duration needs to be adjusted. Refer to Chapter 4, 3.1 CS LED Lights-on Duration Adjustment, for details.

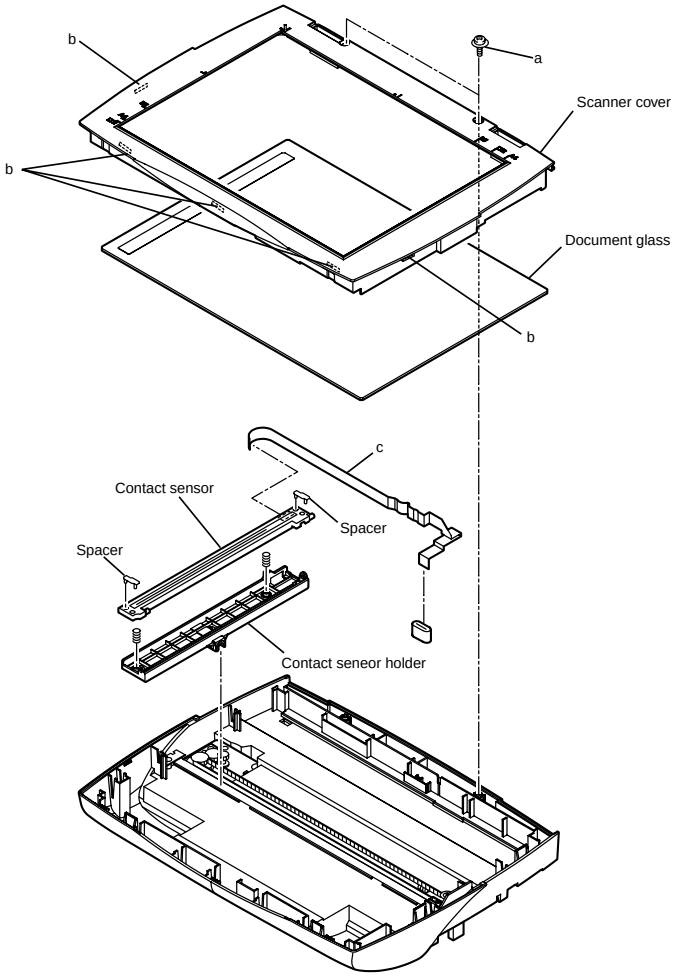


Figure 3-8 Disassembly 8

Disassembly 9. Contact sensor drive motor

(1) Perform disassembly 8, and detach the contact sensor.
(2) Loosen the screw (a), and push the pulley toward the inside to detach the contact sensor drive belt from the gear.
(3) Remove the screw (b), and detach the shaft stopper.
(4) Remove the 2 screws (c), and detach the grounding plate.
(5) Remove the screw (d), and detach the contact sensor drive motor together with the plate.
(6) Remove the 2 screws (e), and detach the contact sensor drive motor from the plate.

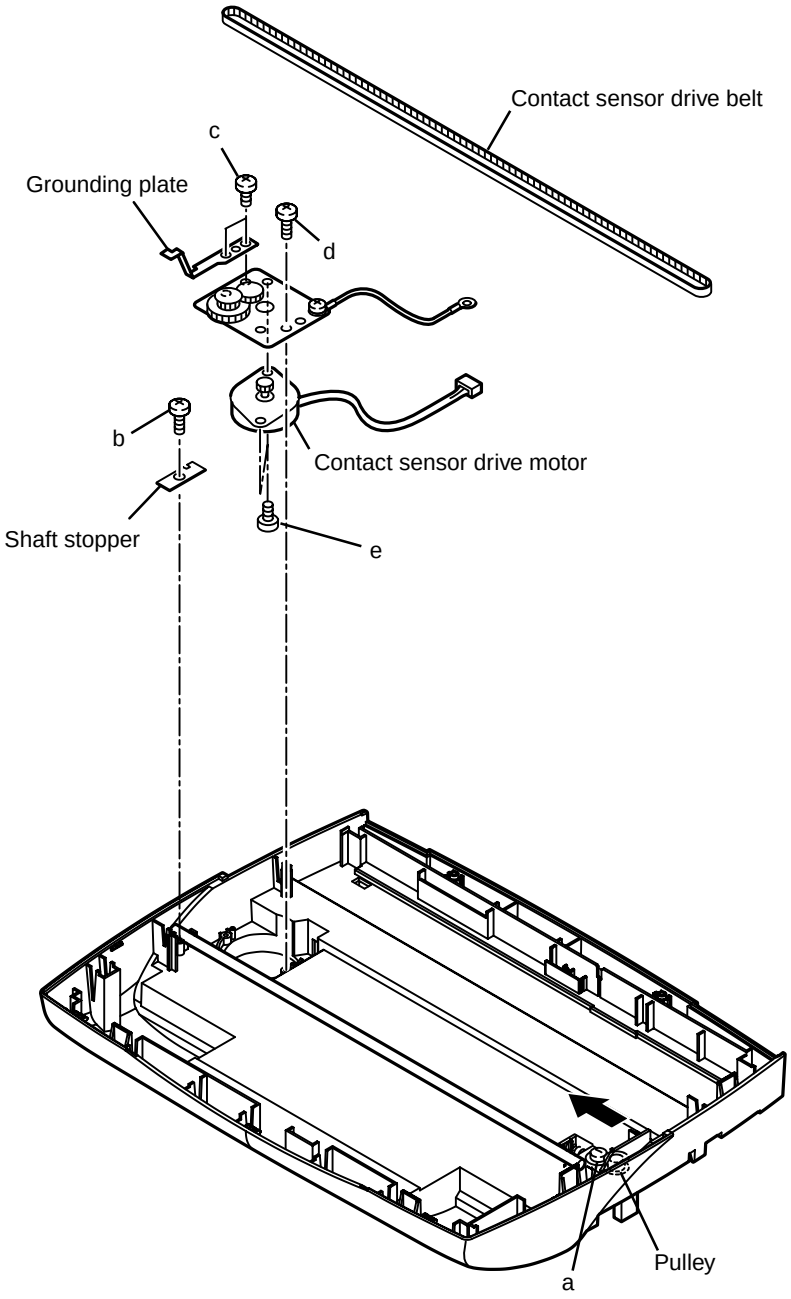


Figure 3-9 Disassembly 9

Disassembly 10. Sensor board

(1) Perform Disassembly 6 to remove the Printer unit.
(2) Disconnect all cables from the sensor board.
(3) Remove the 3 screws (a), and detach the sensor board.

Disassembly 11. ASF unit

(1) Perform Disassembly 6 to remove the Printer unit.
(2) Remove the screw (b), and detach the cable guide.
(3) Remove the 3 screws (c), and detach the ASF unit.

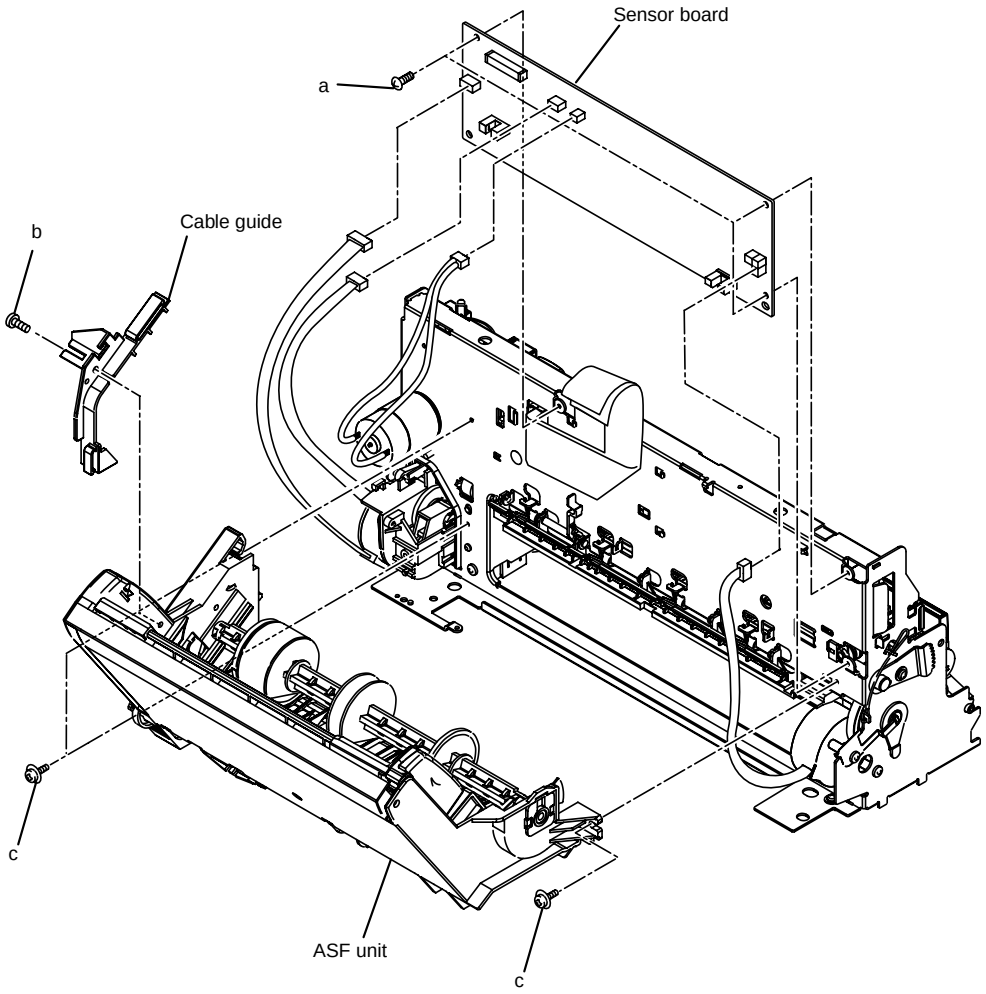


Figure 3-10 Disassembly 10 and Disassembly 11

Disassembly 12. Carriage unit

(1) Perform disassembly 10, and detach the sensor board.
(2) Remove the left and right shaft clips.
(3) Remove the carriage shaft.
(4) Push the pulley to detach the carriage belt.
(5) Detach the carriage encoder film from the tension spring.
(6) Free the claw (a), and detach the spur unit.
(7) Remove the cable guide, and detach the carriage unit.

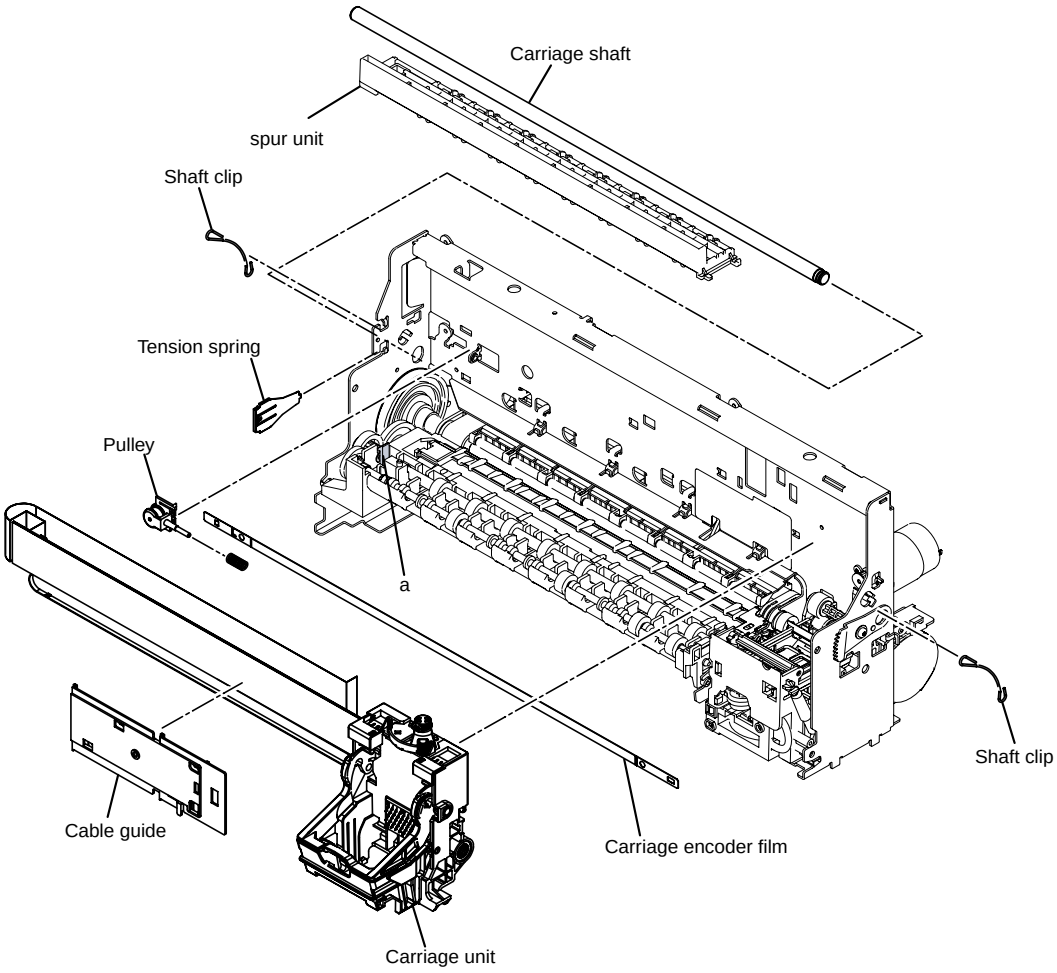


Figure 3-11 Disassembly 12

Installing and removing the carriage encoder film

The carriage encoder film is fixed in place and held taut by the torsion spring.
When you install or remove the carriage encoder film, you have to stretch the torsion spring. Be careful not to pull the torsion spring too much in the direction of the arrow. Otherwise, you will not be able to properly install the carriage encoder film the next time.
Therefore, when installing or removing the carriage encoder film, be very careful not to pull the torsion spring too much.

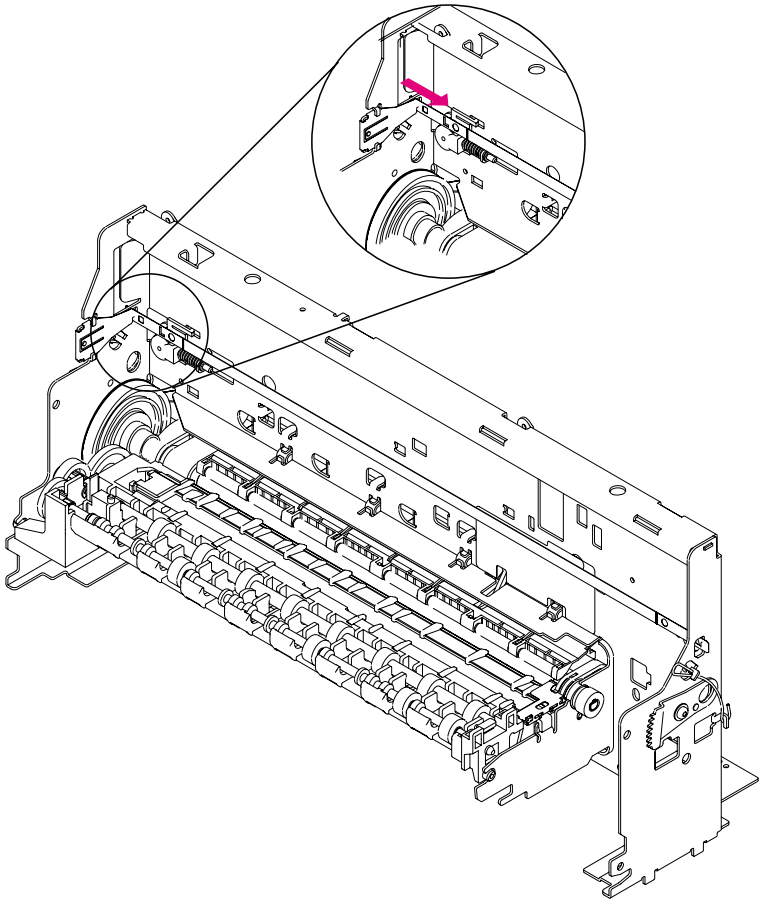


Figure 3-12 Encoder Film

Handling encoder film

(1) Be careful not to get any grease on the encoder film

If grease gets on the carriage encoder film, the film's slits will not be read correctly, resulting in error. If grease gets on the film, use alcohol to wipe it off completely.

(2) Do not fold or scratch the encoder film.

If the film is folded and a white line is created or if a slit is scratched, replace the encoder film.

Disassembly 13. Purge unit

(1) Perform disassembly 12, and detach the carriage unit.

(2) Remove the 2 screws (a), and detach the purge unit.

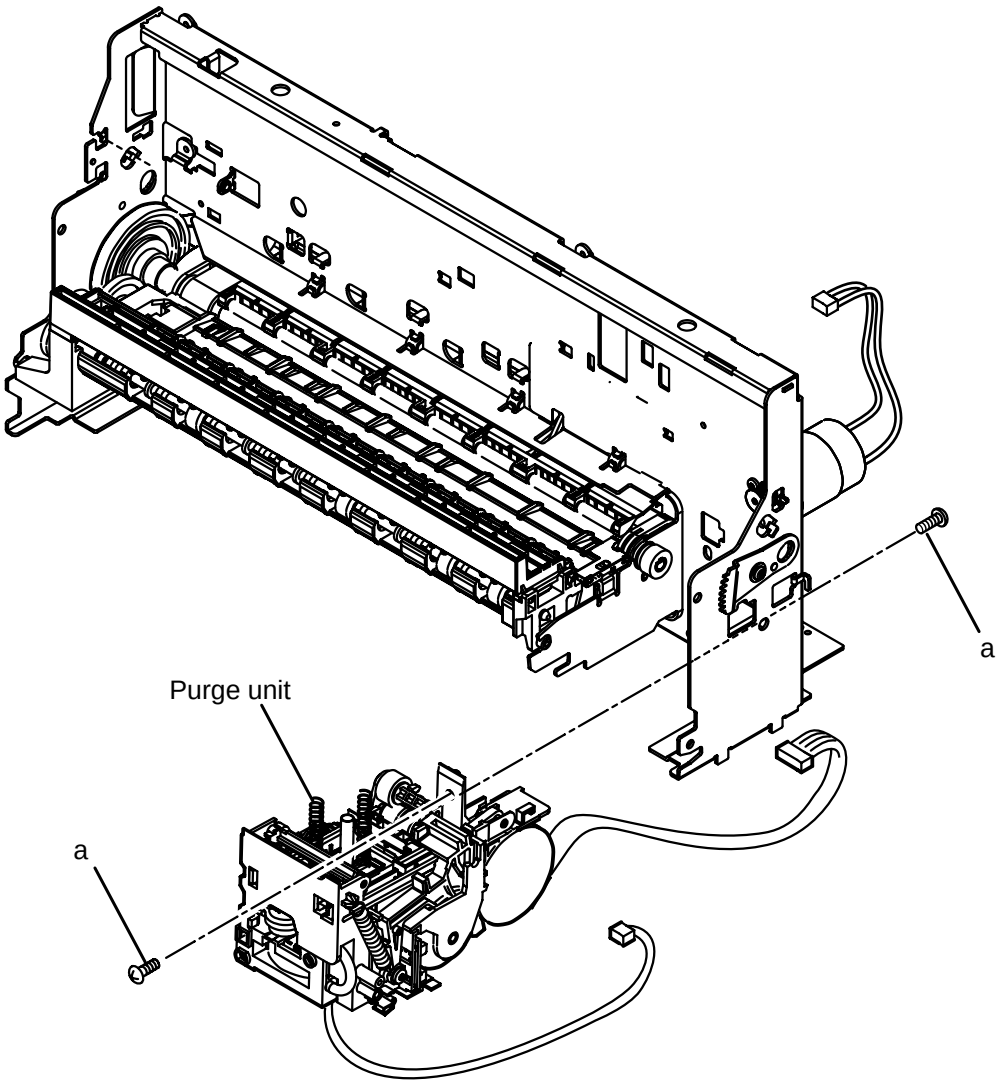


Figure 3-13 Disassembly 13

Handling the purge unit

Note the following with regard to the purge unit:

(1) Grease soiling the blade

Due to the blade's height, the carriage guide shaft may touch it when the shaft is removed or installed. Grease may soil the blade as a result.

You must not allow any grease or oily substance to adhere to the blade.

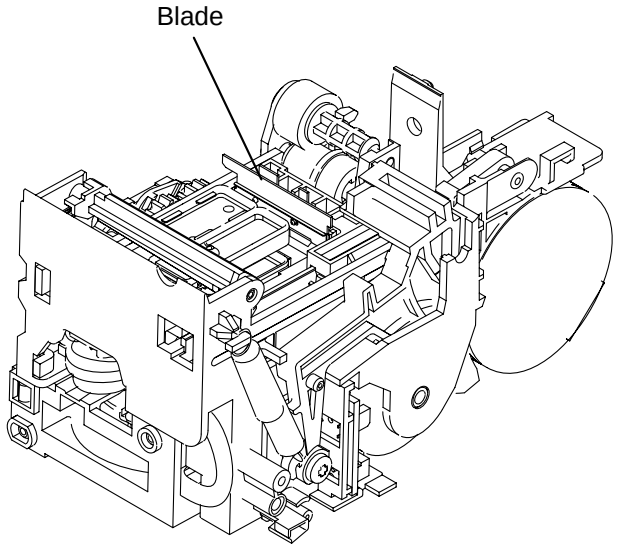


Figure 3-14 Handling the Purge Unit

Disassembly 14. Paper feed motor

(1) Perform disassembly 11, and detach the ASF unit.

(2) Remove the 2 screws (a), and detach the paper feed motor.

Disassembly 15. Carriage motor

(1) Perform disassembly 12, and detach the carriage unit.

(2) Remove the 2 screws (b), and detach the carriage motor.

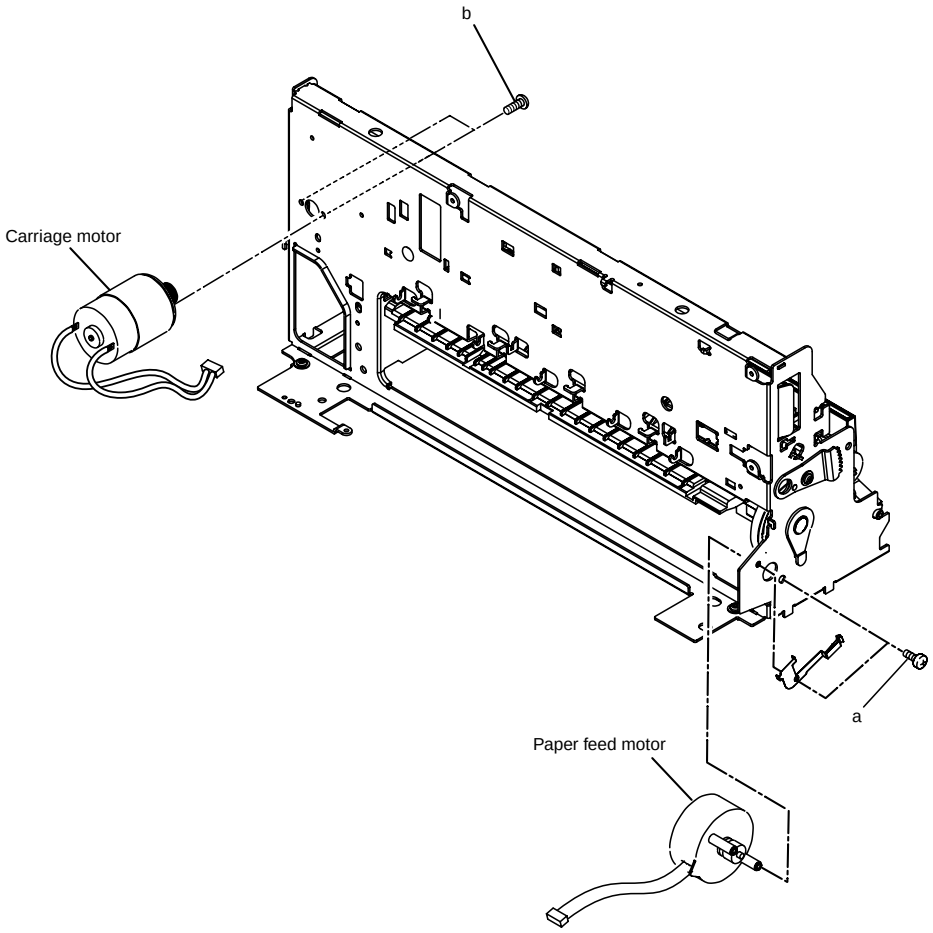


Figure 3-15 Disassembly 14 and Disassembly 15

Disassembly 16. Platen unit

(1) Perform disassembly 12, and detach the carriage unit.
(2) Remove the 4 springs (a), and detach the pressure roller unit.
(3) Remove the platen unit.

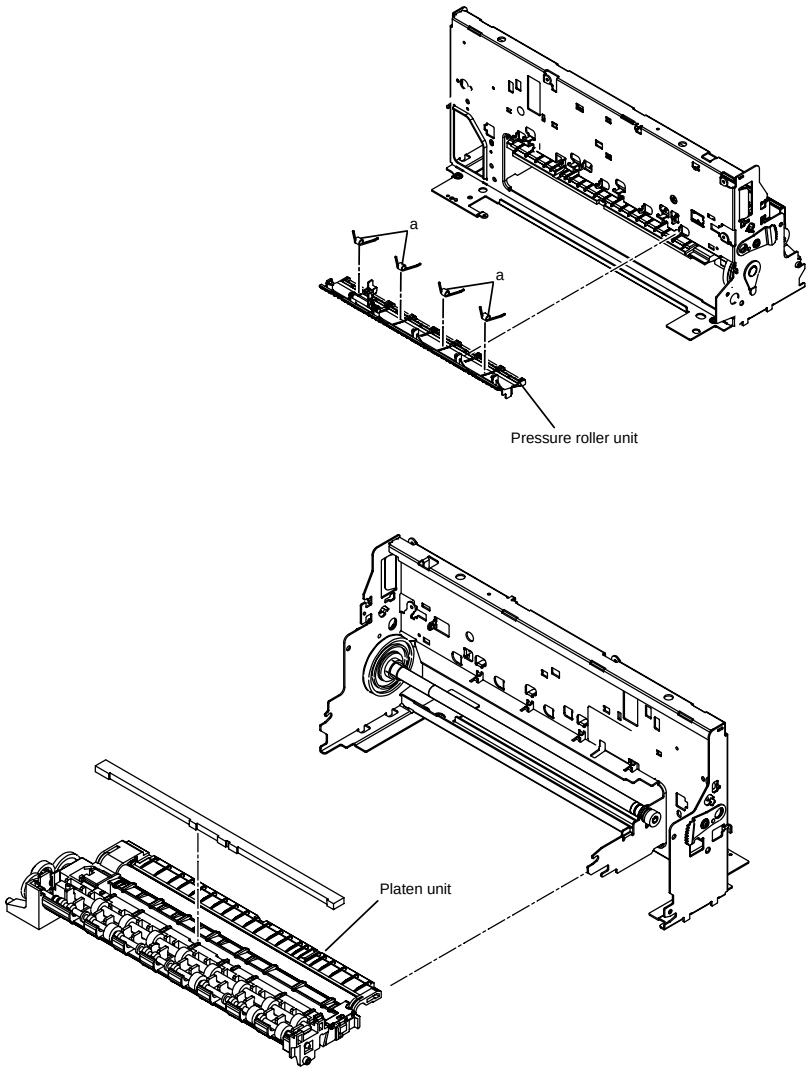


Figure 3-16 Disassembly 16

Disassembly 17. Paper feed roller

(1) Perform disassembly 16, and detach the platen unit.

(2) Remove the bushing (a), and detach the paper feed roller.

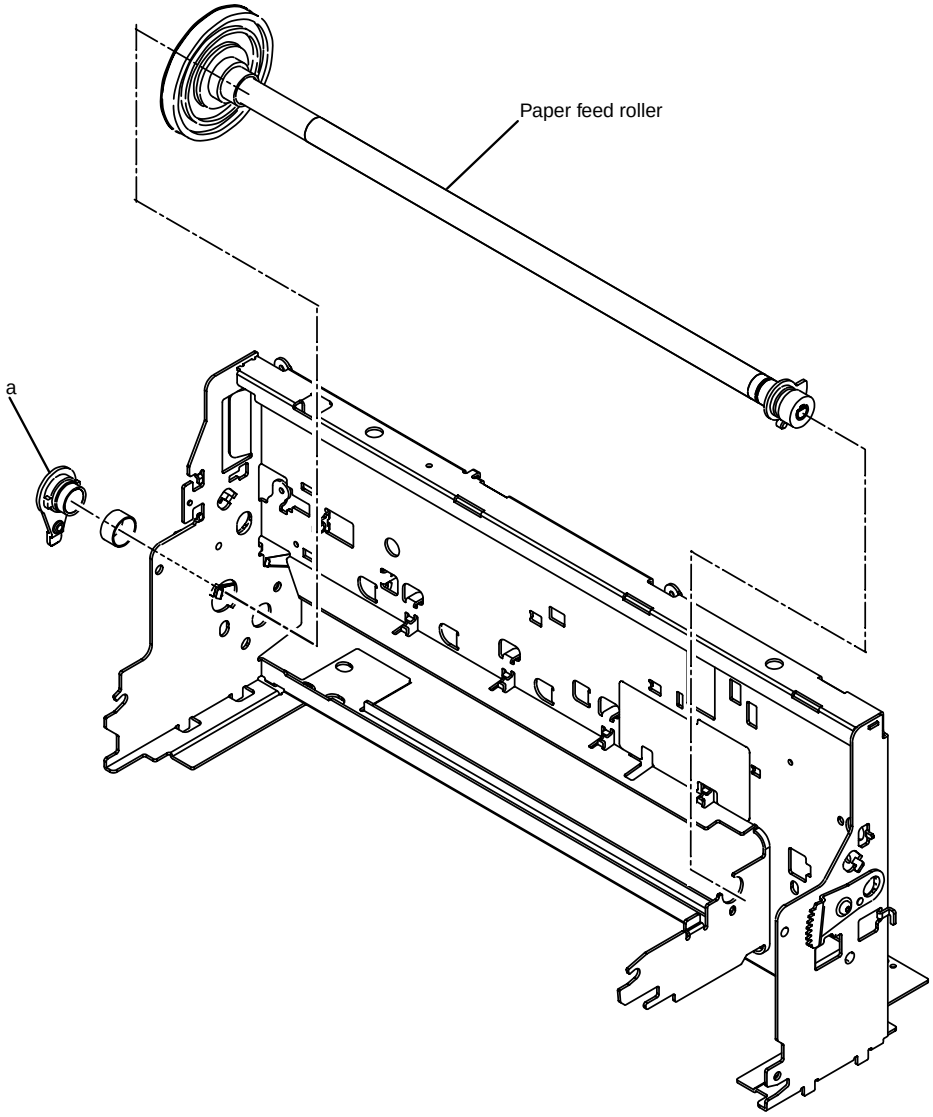


Figure 3-23 Disassembly 15

Disassembly 18. Replacing the ROM

To replace the ROM, perform the following:

a) Before Starting the Work

At the end of replacement, you will have to execute 'all clear'. As necessary, print out the following data.

a-1) Image Data Stored in Image memory

The image data stored in image memory will be lost when the power is turned off. Before turning off the power, check to be sure that all images have been printed out.

a-3) Service reports

Select service mode, and select 'SERVICE REPORT' using the **</>** button. Then, select that type of list to generate using the **</>** button.

b) Replacing the ROM

b-1) ROM on the SPCNT Board

(1) Disconnect the power cord.
(2) Put on a wrist strap to prevent static damage.
(3) Perform Disassembly 1
(4) Remove the ROM from the SPCNT board using the ROM removing tool.
(5) Match the ROM and the IC socket in relation to the cut-offs, and fit the new ROM.
(6) Put back all parts you may have removed.

c) After Replacement

(1) If you have replace the ROM because of a fault in a ROM element, you may end the work by turning on the power after assembling the machine.
(2) If you have replaced the ROM for upgrading that involves changes to the service data, user data, or soft witches, you need to execute 'all clear' (because the memory backed up by the battery retains previous settings). After executing 'all clear', be sure to enter the data you have previously printed out as necessary.

REFERENCE

For a discussion of adjusting the period during which the CS LED remains ON, refer to the descriptions under *3.1 in Chapter 4.*

Chapter 4

Maintenance and Service

1. MAINTENANCE LIST

1.1 Consumables

Level	Consumable	When
User	INK tank (BCI-24Black/ BCI-24Color)	When ink in the ink tank being used has run out.
Service Technician	None	

1.2 Cleaning

For the cleaning procedure, see *this Chapter 2. HOW TO CLEAN PARTS*.

Level	Location	When
User	Main unit outer covers	When dirty.
	Document glass	When dirty.
	Printer platen	When ink adheres to the platen.
Service Technician	None	

1.3 Periodic Inspection

None

1.4 Periodic Replacement Parts

None

1.5 Adjustment Items

The following adjustments must be made on this fax.
For the adjustment procedure, see *this Chapter 3. ADJUSTMENT.*

Item	When
CS LED lights-on duration adjustment	When the SPCNT board, or the lithium battery, or the contact sensor are replaced. Also, when the color or brightness of the copy image or scan image is not normal.
Printhead position adjustment	When the vertical lines shift during Bi-directional printing.

NOTE

Automatic adjustment of CS LED lights-on duration

The CS LED lights-on duration, which can be adjusted via button operation, is also adjusted automatically in the following cases:

- **When power is turned ON then SRAM data is corrupted**

  When this product is shipped, after factory adjusment of the CS LED light-on duration, the exposure control data is stored in SRAM. Because this data is preserved by the Lithium battery even if the power supply is shut off, further adjustment is unnecessary in almost all cases. When the machine's power switch is turned on, the data stored in SRAM is checked for correctness by Checksum, and if any data in SRAM has been lost, adjustment of CS-LED lights-on duration is automatically performed at that time. At first, a check is done for the presence/absence of a document, and if there is no document, exposure control is performed automatically. Exposure control data measured after this is stored in SRAM. When a document is present, scanning is done in an error condition, an abnormal image is output, and the contact sensor is aware that there is an abnormality.

1.6 General Tools

Tool	Use
Phillips screwdriver	Removing/inserting screws
Flat bladed screwdriver	Removing/inserting screws
Precision Phillips screwdriver	Removing/inserting screws
Precision flat bladed screwdriver	Removing plastic tabs
Tweezers	Removing coil spring
Isopropyl alcohol (IPA)	Cleaning the cleaning location
Pliers, needle nose	Driving retaining ring

1.7 Special Tools

Tool	Use	Part No.
Grease (FLOIL 946P)	Apply to specified parts	Qy9-0045
Grease (EMD-110)	Apply to specified parts	HY9-0023
Grease (PG-641)	Apply to specified parts	CK-0562
Grease (IF-20)	Apply to specified parts	CK-8006

2. HOW TO CLEAN PARTS

2.1 Main Unit Outer Covers

Wipe with a dry, soft cloth.

2.2 Document Glass

Open the pressure plate, and wipe with a dry soft cloth.

2.3 Printer Platen

Open the inner cover, and wipe with a cloth moistened with a little water.

NOTE

If the parts above are very dirty, wipe with a cloth moistened with IPA (isopropyl alcohol).

Do not use tissue paper. Dust from the tissue paper causes static electricity.

Precautions when Using IPA

When cleaning with IPA, take care to prevent the IPA from splashing high-temperature parts. If IPA splashes high-temperature parts, leave for at least three minutes to allow the IPA to evaporate.

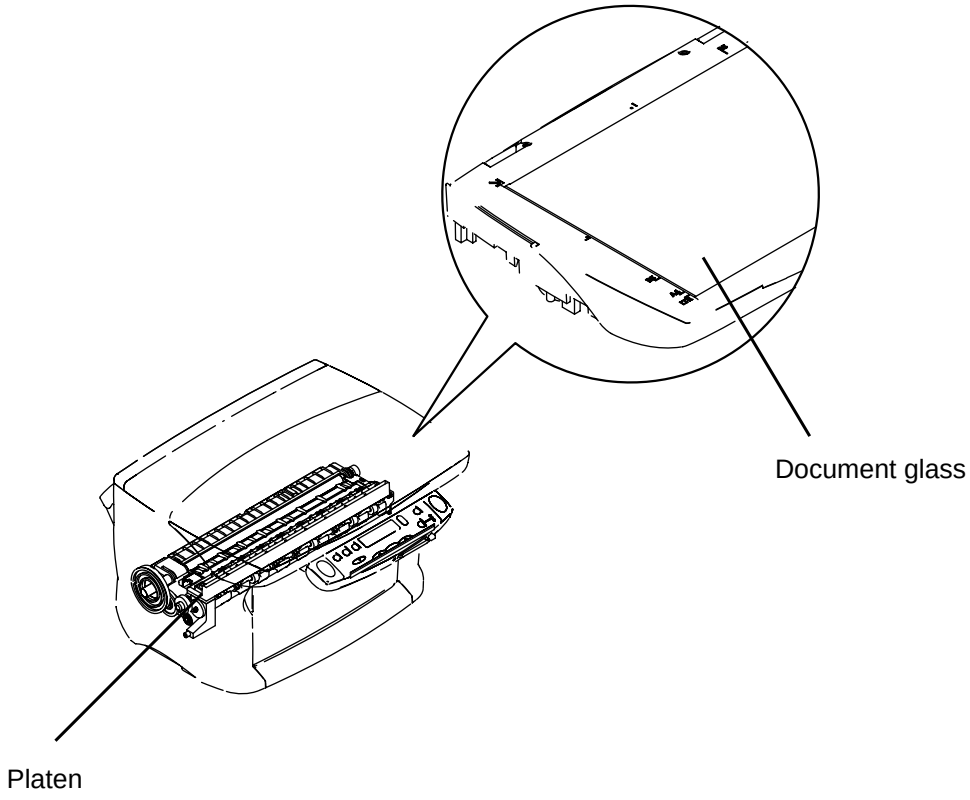


Figure 4-1 Cleaning Location

3. ADJUSTMENT

3.1 CS LED Lights-on Duration Adjustment

a) Overview

This adjustment is used to eliminate uneven scanning which can result from variations in light intensity between individual LED's. Performing the adjustment will therefore have an effect on scanned and copied images.

The adjustment value is registered in an SRAM IC which has lithium battery back-up and will not be lost even if power is turned off. However, the SRAM data can become damaged, for example by battery depletion. In this case, the machine checks the data's validity the next time power is turned ON. If the data is invalid, the adjustment is made automatically. Because the user is automatically prompted, it is almost never necessary to perform this adjustment during normal use. However, if the SPCNT board, Contact sensory ass'y, or lithium battery is replaced, be sure to perform this adjustment. Also, if the color or brightness of scanned or copied images is faulty, performing this adjustment may correct the problem.

b) Procedure

(1) Check that the pressure plate is closed correctly, then perform the adjustment by following the steps described below.

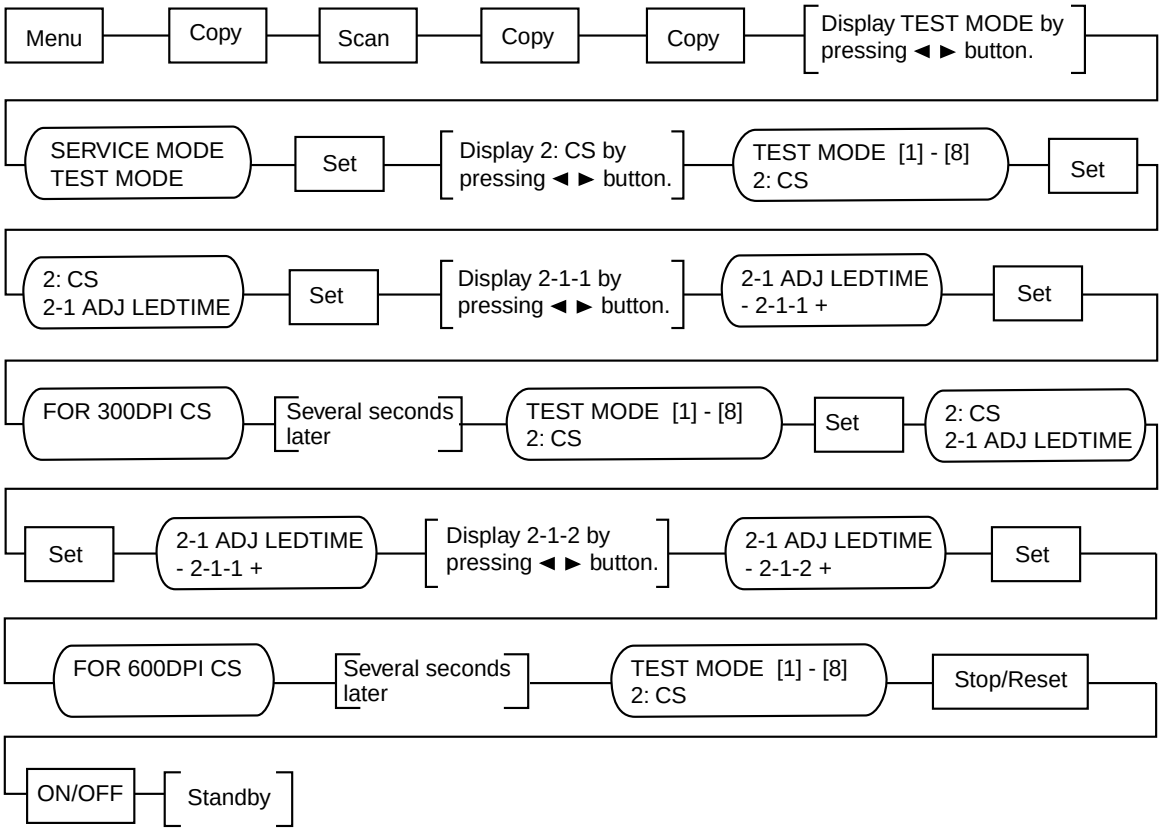


Figure 4-2 CS LED Lights-on Duration Adjustment Operation

(2) The adjustment procedure is finished when the display reads **TEST MODE**.

3.2 When Adjustment of the Print Head Position is Required

a) Overview

When replacing the print heads, the point of ink ejection may be off, preventing clean characters, depending on the state in which BJ cartridge is installed. In order to eliminate this drift, it is necessary to adjust the head position after attaching the BJ cartridge. Set 2 or more sheets of normal paper sized A4 or LTR on the Auto Sheet Feeder, and perform head position adjustment following the steps in Fig. 4-4.

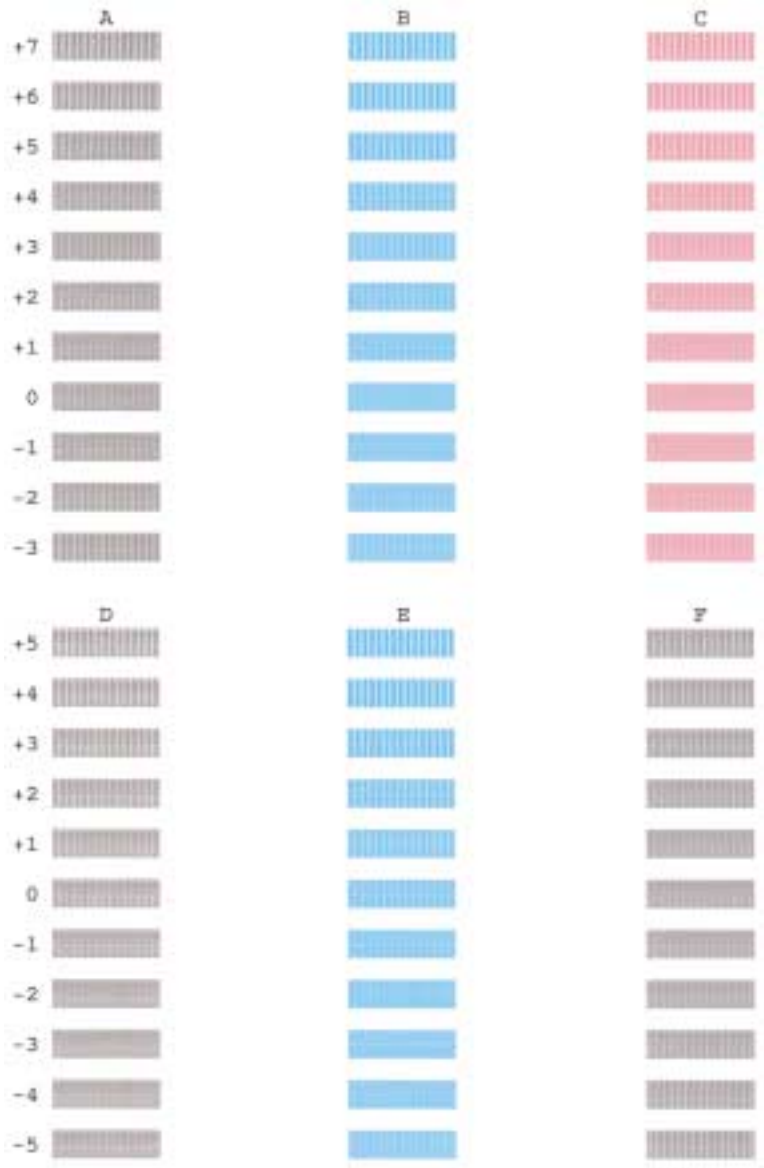


Figure 4-3 Print Position Adjustment Pattern

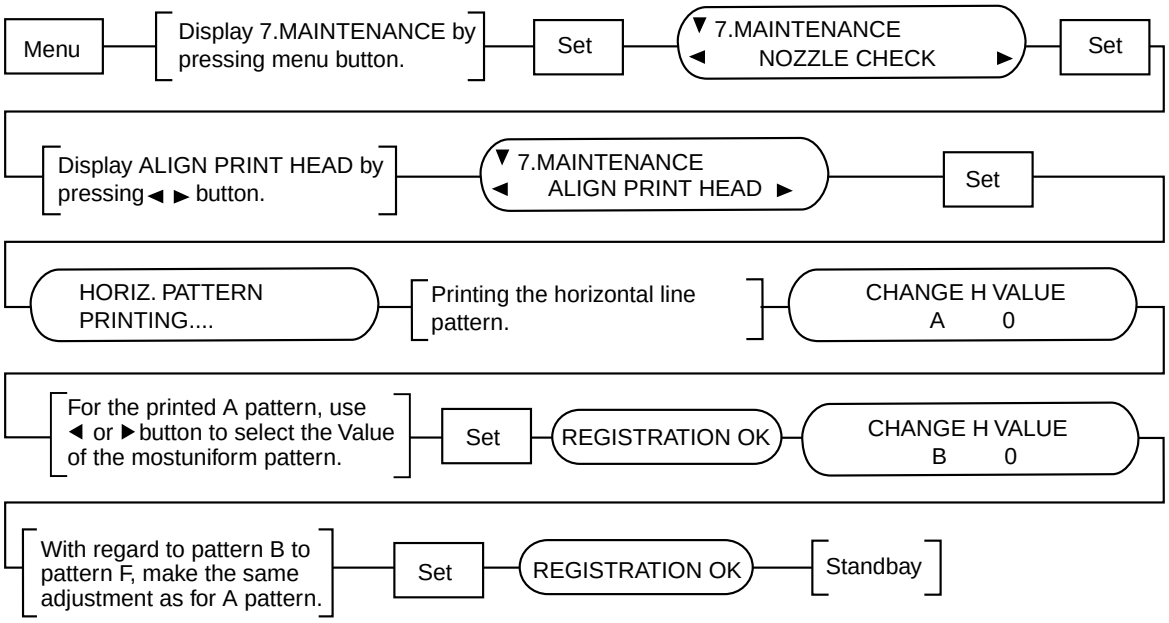


Figure 4-4 Vertical Line Misalignment Correction Procedure

4. TROUBLESHOOTING

4.1 Troubleshooting Index

For troubleshooting, use the troubleshooting index below to investigate the cause of the problem and refer to the specified page for countermeasures.

Problem

- **Errors shown on the display**
  - The error message can be checked.
  - The error code can be checked.

- **General errors**
  - The unit does not power on.
  - The display looks abnormal.
  - The buttons do not work.

- **Printing problem**
  - The paper is not fed properly.
    - The paper feed motor does not run.
    - The paper is not picked up from the auto sheet feeder.
  - The printing operation is abnormal.
    - Nothing is printed.
    - The carriage motor does not run.
  - Printing quality error
    - The printer does not at all.
    - Printing stop midway.
    - Certain colors are not printed.
    - Blotches appear.
    - Blank ink appear.

- **Scanning problem**
  - The scanning image is abnormal.
    - Nothing is printed.
    - The image has vertical stripes.
    - The half-tone image contains black dots.
    - The color or brightness of the scanned image is not normal.

- **Memory card error**
  - The card is not recognized.

4.2 Errors Shown on the Display

4.2.1 User error message

Look for the applicable error message and execute the appropriate countermeasures.

"BLACK INK LOW"

Cause:	The ink level in the black ink tank is low.
Solution:	Replace the black ink tank.

"CARD READER ERROR"

Cause:	There is a problem with the card slot.
Solution:	(1) Switch power OFF/ON. (2) Replace the PC-CARD unit. (3) Replace the SPCNT board.

"CARTRIDGEJAMMED"

Printing position correction failed

Cause: Carriage movement prevented by one of the following.
Damaged shaft.
Parts deformed. (Carriage or guide frame)
Insufficient grease.

Solution: Replace the shaft.
Replace the deformed parts.
Apply more grease.

Cause: Bi-directional print displacement correction failed because the carriage motor is out of step, or some similar reason.

Solution: Replace the carriage motor.

Home position error

Cause: Foreign body in carriage section.

Solution: Open flatbed ass'y, and remove foreign body.

Cause: Loose carriage belt.

Solution: Replace carriage belt.

Cause: Guide frame home position detection tabs is damaged or bent parts.

Solution: Replace the damaged or bent parts.

Cause: Carriage motor does not work.

Solution: (1) Switch power OFF/ON.
(2) Replace carriage motor.

Cause: The position of the carriage cannot be detected (due to smears on the carriage encoder film or SPCNT board failure).

Solution: (1) Switch power off/on.
(2) Wipe the carriage encoder film with a cloth soaked with alcohol.
(3) Replace the carriage unit.
(4) Replace the carriage encoder film.
(5) Replace the SPCNT board.

NOTE

This error message means the same as service error codes ##338 and ##340. When this error occurs in this model, it is not treated as a service error, but as a user error, and the error message is displayed.

"CHECK PAPER SIZE"

Cause: The size of the paper in the multi-purpose tray and that specified in the paper size setting are different.

Solution: Load the correct paper size of change the paper size setting. Then press the **Resume** button.

"CHECK PRINTER" (##334~##336, ##343, ##345, ##346 and ##352)

Cause: The printer's internal unit has malfunctioned.

Solution: (1) Remove the jammed paper. (Check the paper end sensor is OFF.)
(2) Press **Resume** button.
(3) Reinstall the Cartridge.
(4) Turn the power off and on.
(5) Set the service data #1 SSSW SW01 bit 0 to "1" and check the service code. Refer to the countermeasures for that error code.

"CLEAR PAPER JAM"

Cause: Paper jam.

Solution: Clear the paper jam and press the **Resume** button.

"COLOR INK LOW"

Cause: The ink level in the color ink tank is low.

Solutions: Replace the color ink tank.

"COVER OPEN"

Cause: You opened the inner cover during an operation.

Solution: Close the inner cover.

Cause: Failure of a cover sensor.

Solution: Replace the cover sensor. (as a SPCNT board itself: HG1-4477).

"LOAD PAPER"

Cause: The machine is out of paper.

Solution: Add more paper to the paper cassette. Make sure the stack is below the limit mark and press the **Start** or **Resume** button.

"MEMORY FULL"

Cause: The machine's memory is full because you tried to copy too many pages at once or a very detailed document.

Solution: Divide the document and copy each part separately.

Cause: In photo print mode, the photograph data is too large to print from your machine.

Solution: Print the photograph from your computer.

"PUT IN CARTRIDGE"

Cause: The printhead is not set.

Solution: Set the Printhead.

Cause: The printhead is set incorrectly.

Solution: Set the printhead correctly.

"WAIT COOLING"

Cause: The printhead is hot.

Solution: Wait until the message disappears.

"WASTED INK NEAR FULL"

Cause: The waste ink tank is nearly full.

Solution: If the message **"Check Printer"** has appeared, replace the ink absorbent by referring to the instructions under ##343 (cause and action under d) of **4.2.2 "Error Codes"** in this chapter.

"WRONG CARTRIDGE"

Cause: The cartridge isn't installed correctly.

Solution: (1) Reinstall the cartridge.
(2) Replace the cartridge.

4.2.2 Error codes

a) Service error code output

If bit0 of service data #1 SSSW SW01 is set to '1', an appropriate service error code will be indicated as follows in response to an error.

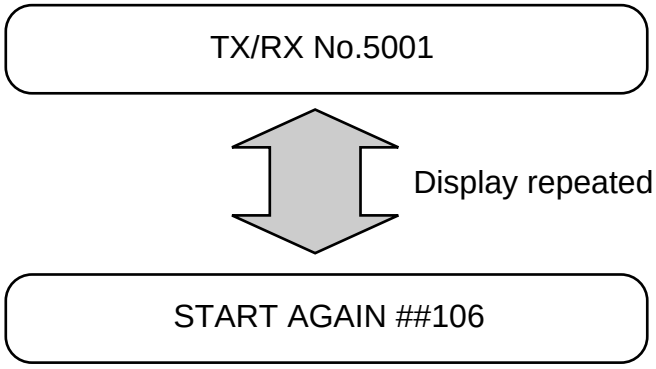


Figure 4-5 Service Error Code Display

b) Error code countermeasures

The following item c) lists all the error codes that the product can display. As for the causes and countermeasures, only the error codes which are newly incorporated in the unit a remedies unique to the product are included in the item d). For the causes and countermeasures of other error codes, refer to the separate *G3 Facsimile Error Code Service Hand Book (Rev. 1)*.

c) ERROR CODE LIST

The error codes that have newly been added starting with the product are identified by the notation "*new*" those error codes for which remedies unique to the product are offered are identified by the notation "UNQ (UNIQUE)."

Service error code

	No.	Definition
	##334	Printer control EEPROM check error
	##335	Data transmission error between the system control section and printer control section
	##336	BJ head abnormal temperature error
UNQ	##343	Ink absorber for ink detection has become full
	##345	BJ cartridge head cleaning error
	##346	Inside temperature error
New	##352	Printer control EEPROM head information error

d) New error codes and recovery methods

Those error codes that have been added starting with the product and those error codes for which remedies unique to the product are offered are shown together with causes and remedies, where applicable.

##343 Ink absorber for ink detection has become full

Solution: Unlike errors that trigger the **"CHECK PRINTER"** message, This error is programmed so that it cannot be cleared using the **Resume** button. Replace the waste ink absorber as follows in the error occurs:

(1) Select 5. INK ABS CAPA under #7 PRINTER in service mode, and the counter to 0.

(2) Check to make sure that no image exist in memory; then, turn off the power, remove the appropriate parts, and replace the waste ink absorber.

##352 Printer control EEPROM head information error

Cause: The EEPROM for printer control is faulty.

Solution: (1) Turn off and then on the power.

(2) Turn off the power, and replace the print head.

(3) Replace the SPCNT board.

NOTE

In the presence of ##352, the carriage unit will not move to head replacement position even when the inner cover is opened. Moreover the carriage will not be locked in position even when the power is turned off.
When replacing the head, be sure to turn off the power, and draw out the carriage before replacement.

4.3 Errors not Shown on the Display

4.3.1 General errors

• The unit does not power on.

(1) Check the power cord connection.
(2) Check the connection between the SPCNT board (JPSU1) and power supply unit.
(3) Check the power supply unit's fuse (F1).
(4) Replace the power supply unit.

• The display looks abnormal.

Nothing is displayed.

(1) Check the connection between the Operation panel unit and SPCNT board (JPANEL1).
(2) Replace the Operation panel unit.
(3) Replace the SPCNT board.

Part of the LCD panel does not display anything.

(1) Check the connection between the Operation panel unit and SPCNT board (JPANEL1).
(2) Replace the Operation panel unit.
(3) Replace the SPCNT board.

• The buttons do not work.

(1) If the test mode can be used, check for faulty buttons.
(2) Check the connection between the Operation panel unit and SPCNT board (JPANEL1).
(3) Replace the Operation panel unit.
(4) Replace the SPCNT board.

4.3.2 Printing problems

• Faulty printing

• The paper is not fed properly.

The Paper feed motor does not run.

(1) Check the connection from the paper feed motor to the sensor board (J104).
(2) Check the connection from sensor board(J101) to SPCNT board(JEXT1).
(3) Replace the paper feed motor.
(4) Replace the sensor board.
(5) Replace the SPCNT board.

The paper is not picked up from the auto sheet feeder.

(1) Check the foreign matter in the paper feed section.
(2) Replace the ASF unit.
(3) Replace SPCNT board (Faulty PRS or PES).

• The printing operation is abnormal.

Nothing is printed.

(1) Remove the printhead and re-install it.
(2) Execute cleaning three times, and try printing again.
(3) Replace the printhead.
(4) Replace the ink tank.
(5) Check the connection between carriage ribbon cable and SPCNT board (JHEAD0, JHEAD1).
(6) Replace the carriage unit.
(7) Replace the SPCNT board.

The carriage motor does not run.

(1) Check the connection from the carriage motor to the sensor board (J103).
(2) Check the connection from the sensor board(J101) and SPCNT board(JEXT1)
(3) Replace the carriage motor.
(4) Replace the sensor board.
(5) Replace the SPCNT board.

• Carriage error.

The carriage hits against the left/right stop plate, causing a noise.

The printed characters appear somewhat elongated, or characters or pictures are displaced.

(1) Check for the presence of grease on the carriage encoder film.
(2) Using lint-free paper moistened with alcohol, wipe the carriage encoder film, being careful not to damage the film.
(3) If a relatively large amount of grease is found, suspect that some grease may have made its way to the sensor on the carriage board. Replace the carriage board as necessary (as a carriage unit itself: HM1-0360).
(4) Replace the carriage encoder film.

• Printing quality error

• The printer does not at all.

• Printing stops midway.

• Certain colors are not printed.

(1) Check that the orange cap or tape is not on the printhead.

(2) Carry out nozzle cleaning on the printhead Three times with the cleaning operation, than visually cheek the test print for non-discharge of ink from nozzle. (*Fig. 4-6*)

(3) Remove and reinstall the printhead.

(4) Replace the appropriate ink tank.

(5) Replace the printhead.

(6) Replace the purge unit.

• Blotches appear

• Blank ink appear

(1) Carry out nozzle cleaning on the printhead Three times with the cleaning operation, than visually cheek the test print for non-discharge of ink from nozzle. (*Fig. 4-6*)

(2) Remove and reinstall the printhead.

(3) Replace the appropriate ink tank.

(4) Replace the printhead.

(5) Check the connection of the carriage ribbon cable and the SPCNT board. (JHEAD0, JHEAD1)

(6) Replace the carriage unit.

(7) Replace the SPCNT board.

(8) Replace the purge unit.

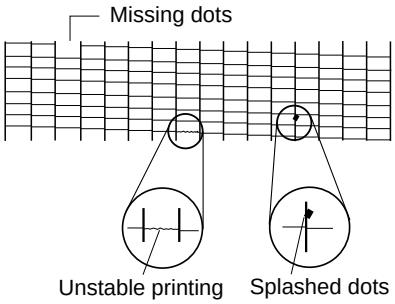


Figure 4-6 Defective Pattern (Sample)

4.3.3 Scanning problems

• Faulty scanning

Contact sensor drive motor does not run.

(1) Check the connection of the contact sensor drive motor and SPCNT board(JRMTR1)
(2) Replace the contact sensor drive motor.
(3) Replace the SPCNT board.

• The scanning image is abnormal.

(1) Check the connection of the contact sensor and SPCNT board (JCS1).
(2) Replace the contact sensor unit.
(3) Replace the SPCNT board.

The image has vertical stripes.

(1) Clean the Document glass.
(2) Check the connection between the contact sensor and SPCNT board (JCS1).
(3) Replace the contact sensor unit.
(4) Replace the SPCNT board.

The halftone image contains black dots.

(1) Clean the Document glass.
(2) Check the connection between the contact sensor and SPCNT board (JCS1).
(3) Adjust the CS LED lights-on duration.
(4) Replace the contact sensor unit.
(5) Replace the SPCNT board.

The color or brightness of the image is not normal.

(1) Clean the Document glass.
(2) Clean the white sheet.
(3) Adjust the CS LED lights-on duration.
(4) Replace the contact sensor unit.
(5) Replace the SPCNT board.

4.3.4 Memory card error

- **Memory card error**

  The card is not recognized.

  (1) Detach the memory card, and fit it back once again.
  (2) Check to see if the memory card contains image data using a digital camera or computer.
  (3) Check the connection between the PC card reader and the SPCNT board (JCARD1).
  (4) Replace the PC card reader unit.
  (5) Replace the SPCNT board.

5. SERVICE SWITCHES

5.1 Hardware Switches

There is no service hardware switch on the Circuit board.

5.2 Service Data Setting

Service data can be checked and changed with items on display menus. The default values of the SSSW/ parameters available in this fax machine are shown in *this Chapter, 5.2.3 Service data setting* in this manual. The SSSW/parameters given in the previous product-specific manual are explained in the *G3 Facsimile Service Data Handbook*. The new switches for this model are described in *this Chapter, 5.2.3 Service data setting.*

5.2.1 Service data overview

The service data menu items are divided into the following nine blocks.

#1 SSSW (Service soft switch settings)

These setting items are for basic fax service functions such as error management, echo countermeasures, and communication trouble countermeasures.

#2 MENU (MENU switch settings)

These setting items are for functions required during installation, such as NL equalizer and transmission levels.

#3 NUMERIC Param. (NUMERIC parameter settings)

These setting items are for inputting numeric parameters such as the various conditions for the FAX/ TEL switching function.

#4 NCU (NCU settings)

These setting items are for telephone network control functions such as the selection signal transmission conditions and the detection conditions, for the control signals sent from the exchange.

#5 TYPE (TYPE setting)

The type setting makes the service data conform to a specific country communications standards. There is only one setting item in this block.

#6 GENESIS (UHQ function setting)

These setting items are for scanned image processing such as edge enhancement and error diffusion processing.

#7 PRINTER (PRINTER function settings)

These setting items are for basic printer service functions such as the reception picture reduction conditions. Also there is an item for resetting the printer section without switching the power off-on.

#8 CLEAR (Data initialization mode)

Various data are initialized by selecting one of these setting items. There is a setting item for checking/inputting the total number of pages printed and total number of pages scanned by this fax.

#9 ROM (ROM management)

ROM data such as the version number and checksum are displayed.

5.2.2 Service data registration/setting method

Service data can be registered/set by the following operations:

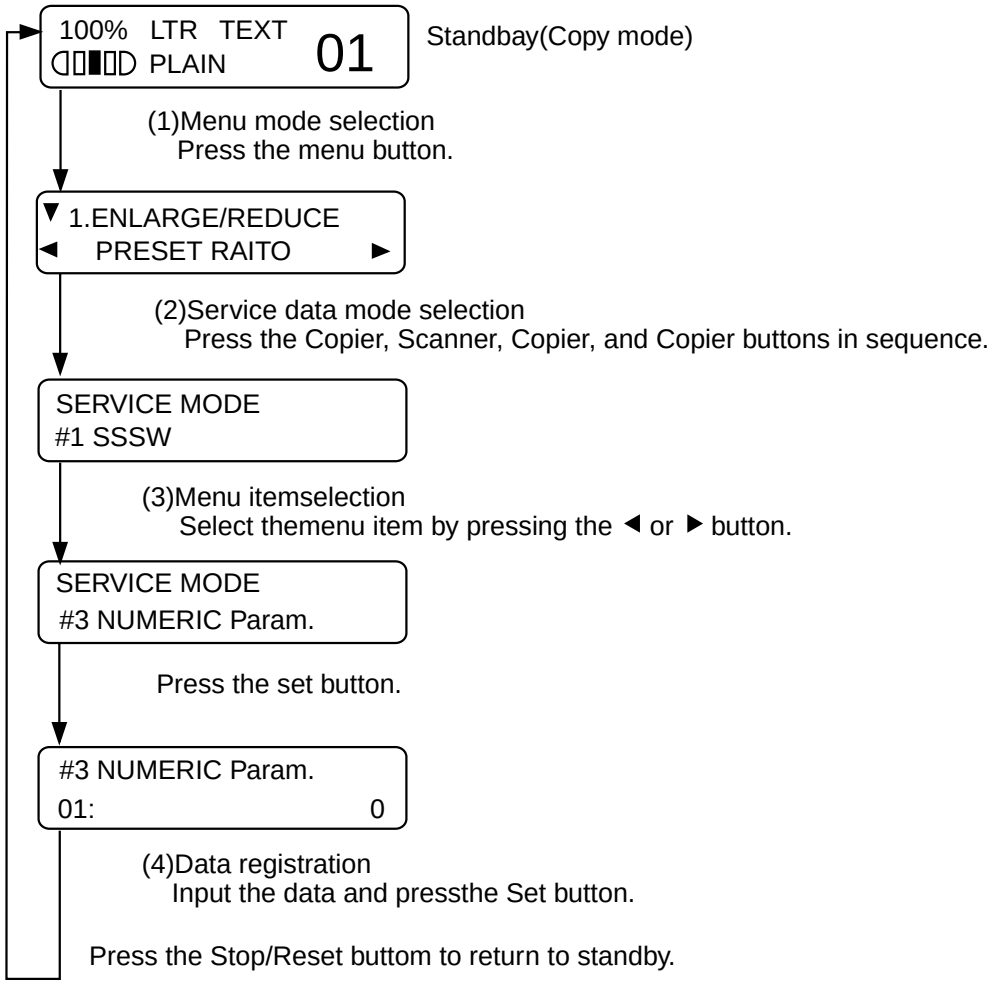


Figure 4-7 Service Data Setting Method

5.2.3 Service data setting

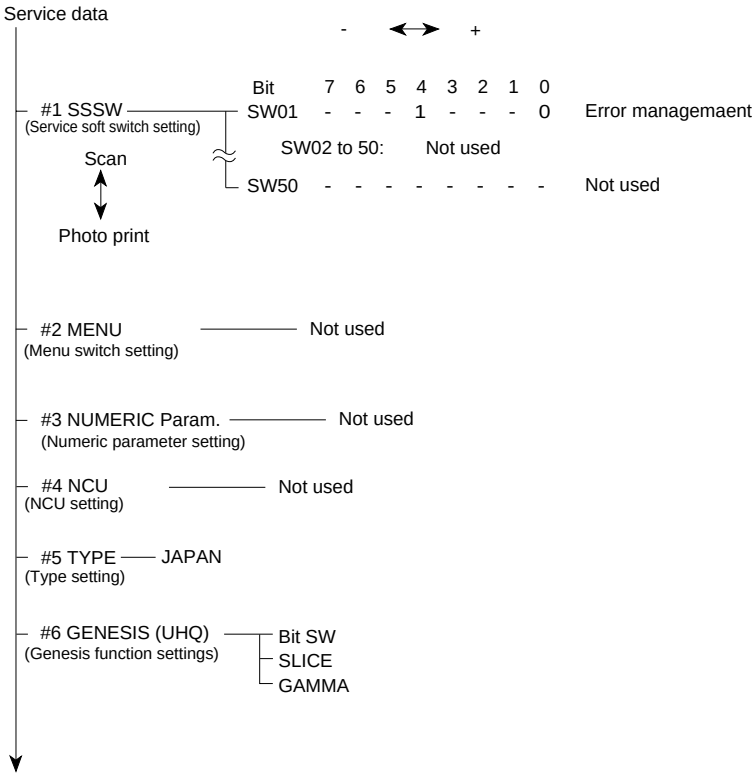


Figure 4-8 Service Data (page 1)

The switches marked "–" are not used. Do not change their settings.

#2 MENU, #3 NUMERIC Pram. and **#4 NCU** are not used. Do not change their settings.

#6 GENESIS (UHQ function settings)

Tampering with this setting may cause the scanned image quality to deteriorate. Do not change these settings.

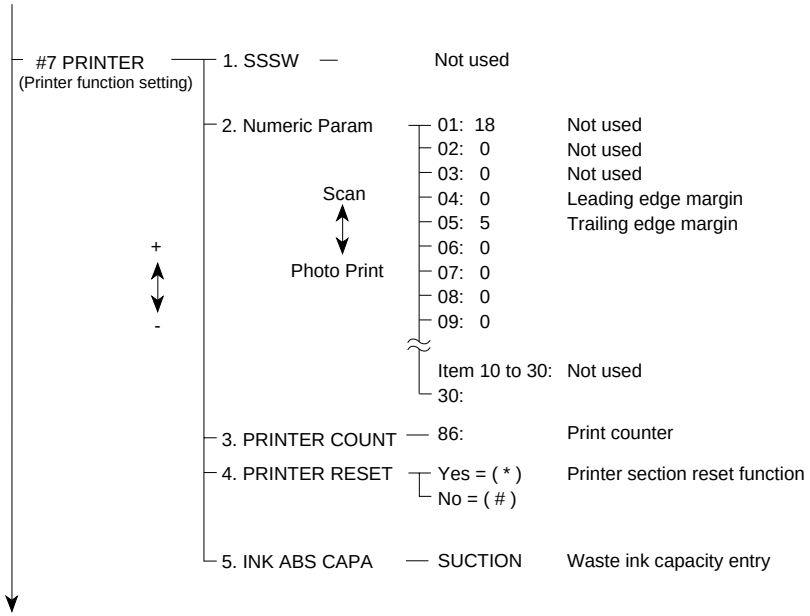


Figure 4-9 Service Data (page 2)

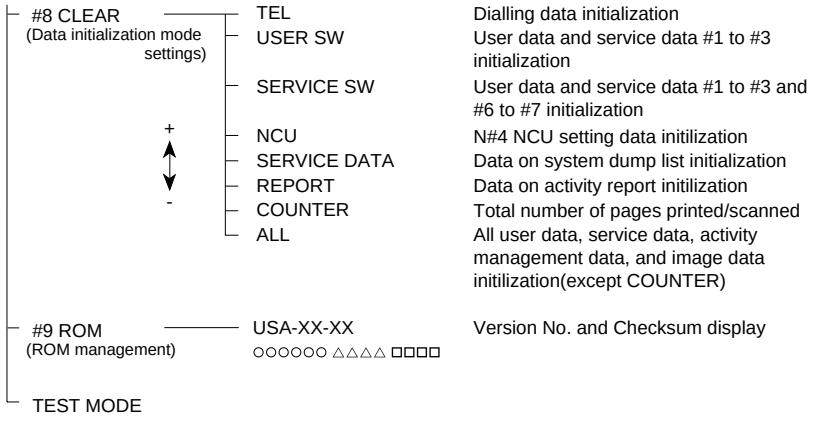


Figure 4-10 Service Data (page 3)

NOTE

If USER SW is selected from #8 CLEAR, the memory management of the user data is not cleared. If TEL or SERVICE SW is selected, the memory management of the user data is cleared.

REFERENCE

For details on test mode, see *this Chapter Service Test Functions*.

5.2.4 Explanation of service data

a) SSSW (Service Soft Switch settings)

The items registered and set by each of these switches comprise 8-bit switches. The figure below shows which numbers are assigned to which bits. Each bit has a value of either 0 or 1.

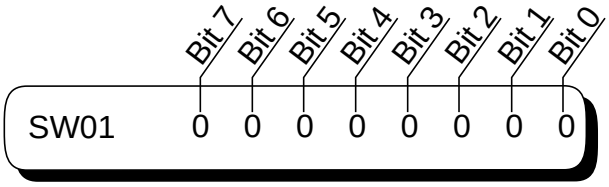
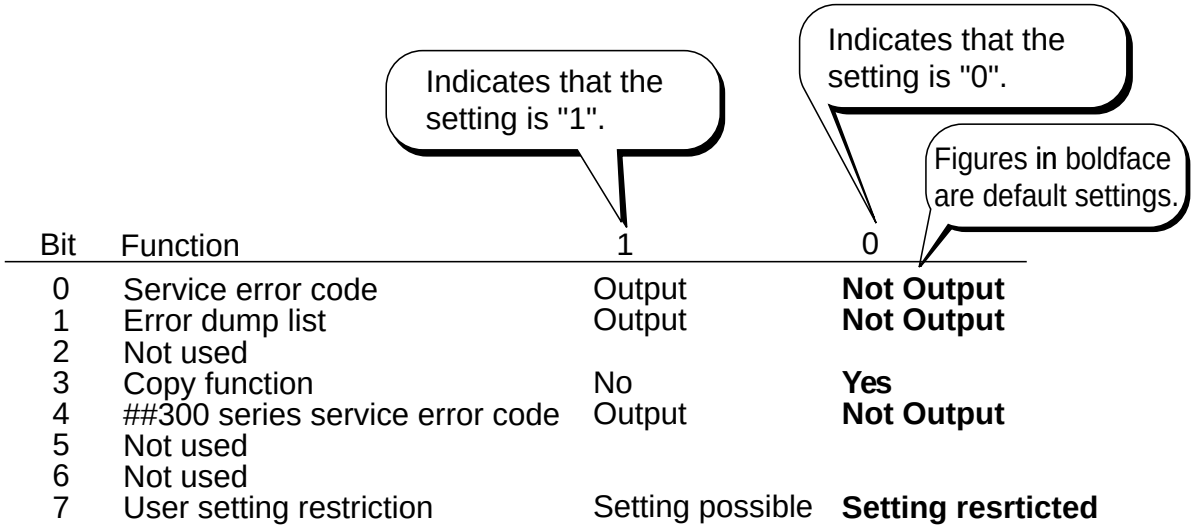


Figure 4-11 Bit Switch Display

See the chart in the service data shown in *this Chapter, 5.2.3 Service data setting* to see effective bits and their default values. The meanings (functions) of the bits are not described in this manual except the new switches added to this model. See *the G3 Facsimile Service Data Handbook (supplied separately)* for details of the switches.

Below are examples showing how to read bit switch tables.



Bit	Function	1	0
0	Service error code	Output	**Not Output**
1	Error dump list	Output	**Not Output**
2	Not used		
3	Copy function	No	**Yes**
4	##300 series service error code	Output	**Not Output**
5	Not used		
6	Not used		
7	User setting restriction	Setting possible	**Setting resrticted**

Figure 4-12 How to Read Bit Switch Tables

5.2.5 New SSSWs/parameters added to this model

#7 PRINTER (printer function settings)

2. NUMERIC PARAM.

No.	Function	Selecting range	Default setting
05	Trailing edge margin	0 ~ 9999	5 (5 mm)

[Parameter 05]

Sets the print image trailing edge margin.

5. INK ABS CAPA

This switch allows the waste ink capacity stored in the SPCNT board to be checked or entered.

[SUCTION]

This allows the waste ink capacity for the ink absorbed during cleaning to be checked or entered. When entering the waste ink capacity, use the < / > button to enter a value 0 to 100 (%).

NOTE

The amount of waste ink collected by the absorbent is determined in relation to the amount ejected by the BJ cartridge, and the result is stored in the EEPROM on the SPCNT board. If you have to replace the SPCNT board, be sure to replace the waste ink absorbent at the same time, and enter '0' to indicate the amount of waste ink to be stored in the new SPCNT.

6. TEST FUNCTIONS

6.1 User Test Print Functions

User enabled Test print functions are as follow.

6.1.1 Nozzle check pattern

If you find a nozzle pattern indistinct or partially missing when you conduct this test print, do the head cleaning. If the symptom is not solved even after the cleaning is done three times, do the head refreshing. If the head refreshing does not solve the symptom, replace the BJ cartridge or the ink cartridge. To generate the nozzle pattern, hold down the **Menu** button until **7. Maintenance** is indicated; then, select **Printer Nozzle Check** using the < / > button, and press the **Set** button.

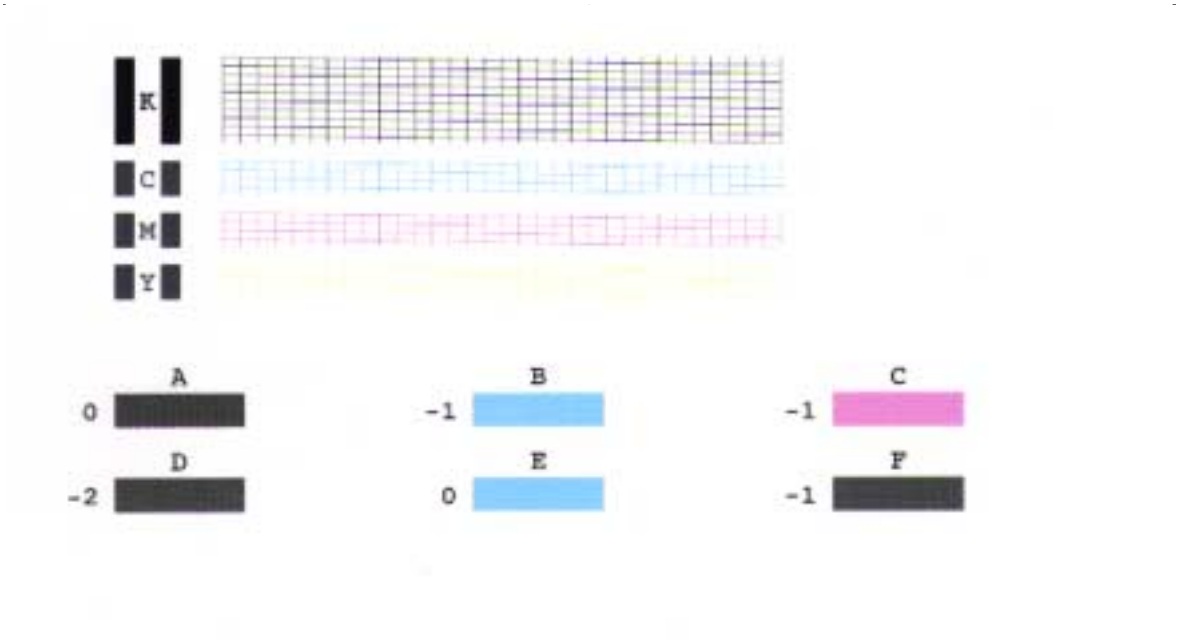


Figure 4-13 Nozzle Check Pattern Print

6.2 Service Test Functions

The fax functions for testing individual operations, such as below.

See *this chapter 5.2.2 Service data registration/setting method* for details of entering the test mode. To leave the test mode, press the **Stop/Reset** button, and then **ON/OFF** button.

6.2.1 Test mode overview

Test mode can be executed by following the menu items from the display.

a) DRAM tests

Writes data to DRAM image storage areas and reads that data to check operations.

b) CS test

CS test is used to enter the contact sensor's shading data.

c) Faculty tests

Test the operation of operation panel and sensor functions.

6.2.2 Test mode flowchart

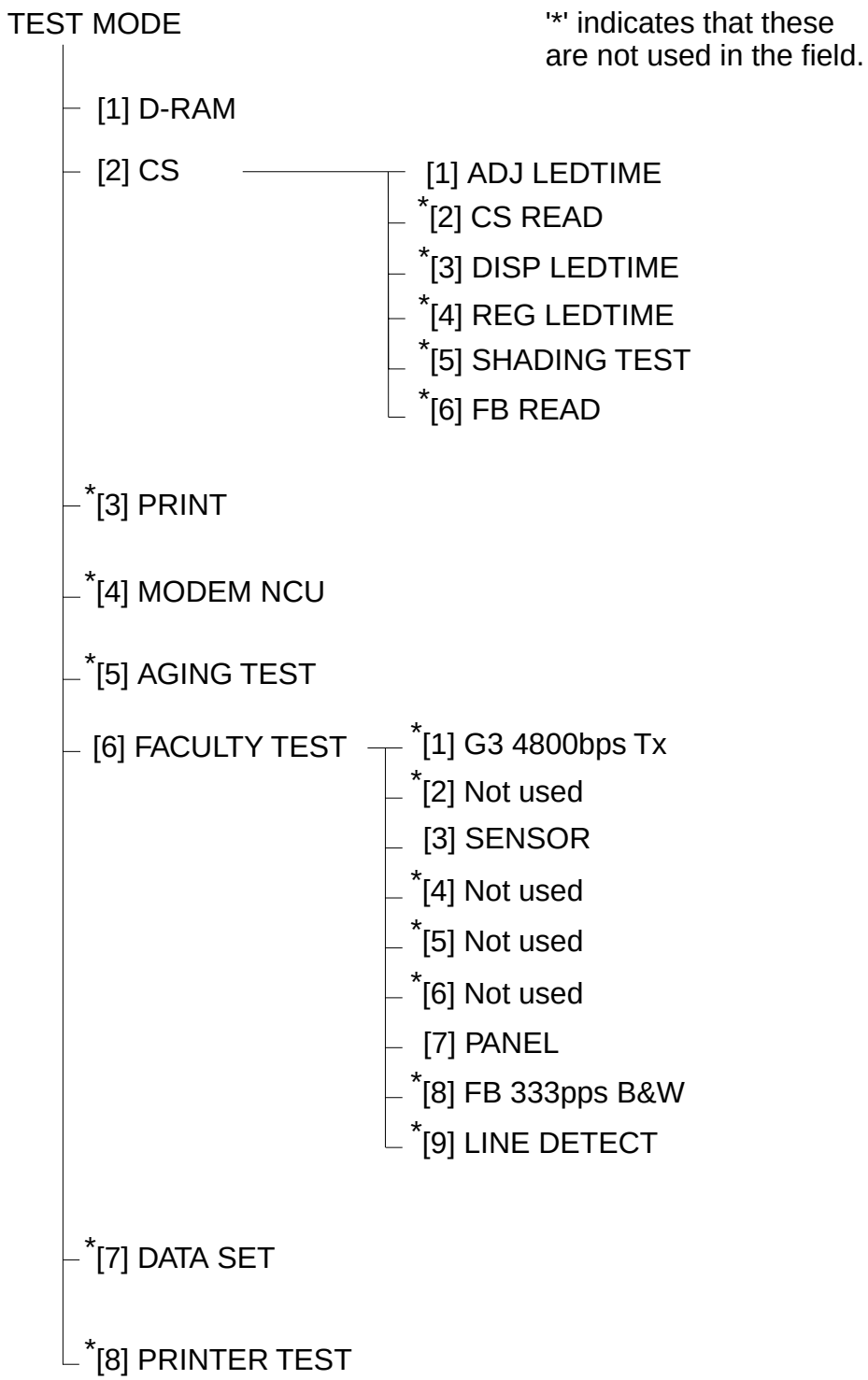


Figure 4-14 Test Mode

6.2.3 D-RAM tests

Pressing the < /> button from the test mode menu selects the D-RAM tests. D-RAM Test 1 writes data to the entire D-RAM region and reads it out to check that operations are correct. D-RAM Test 2 just reads data at high speed.
Replace the SPCNT board if an error occur.

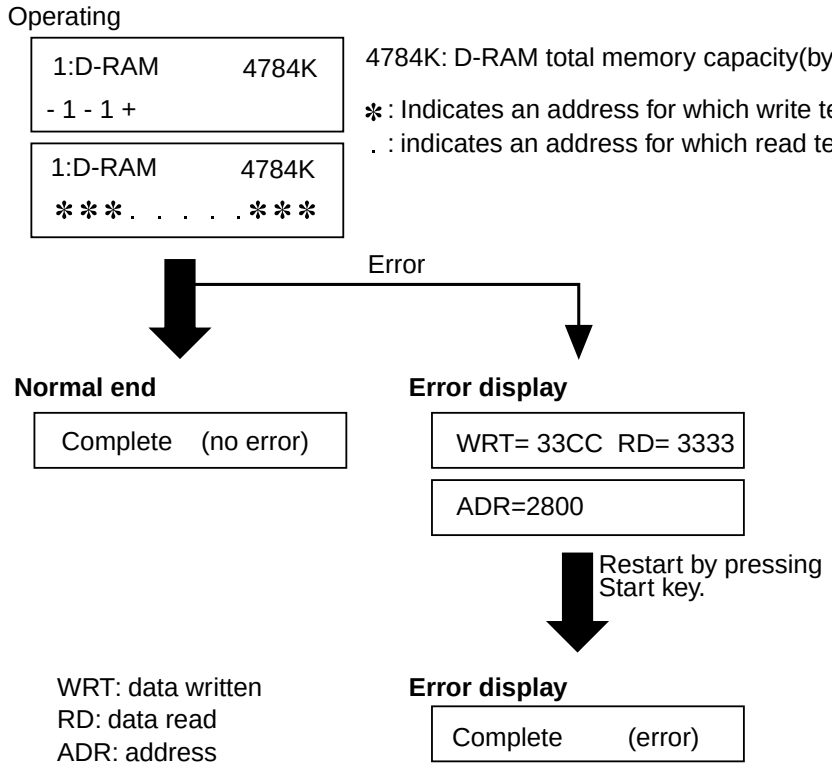
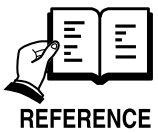


Figure 4-15 D-RAM Test

6.2.4 CS tests

Pressing the < / > button from the test mode menu selects the CS tests. **ADJ LED TIME** is used to adjust the CS LED lights-on duration and enter the contact sensor's shading data (pre-scan operation).



Details on CS LED lights-on duration adjustment, see *this Chapter 3.1 CS LED Lights-on Duration Adjustment*.
Tests [2], [3], [4] and Tests [5] are not used in the field.

6.2.5 Faculty tests

The faculty tests are selected by pressing the **< / >** button from the test mode menu. These tests test the following faculties of this machine.

Test type	Overview
Sensor tests	Test whether the sensors are operating correctly.
Operation panel test	Tests whether the button switches on the control panel are operating correctly.

a) Sensor tests

The sensor test is selected by pressing the **< / >** button from the faculty test menu. In this test, you can check the status of each sensor of this fax in item 1 on the display.

You can also check if sensors that use actuators and microswitches are operating correctly by moving the actuator or microswitch.

NOTE

The sensor test does not permit a check on all sensors (e.g., pickup roller sensor). If the pickup roller sensor is faulty, a message will appear indicating a recording paper jam.

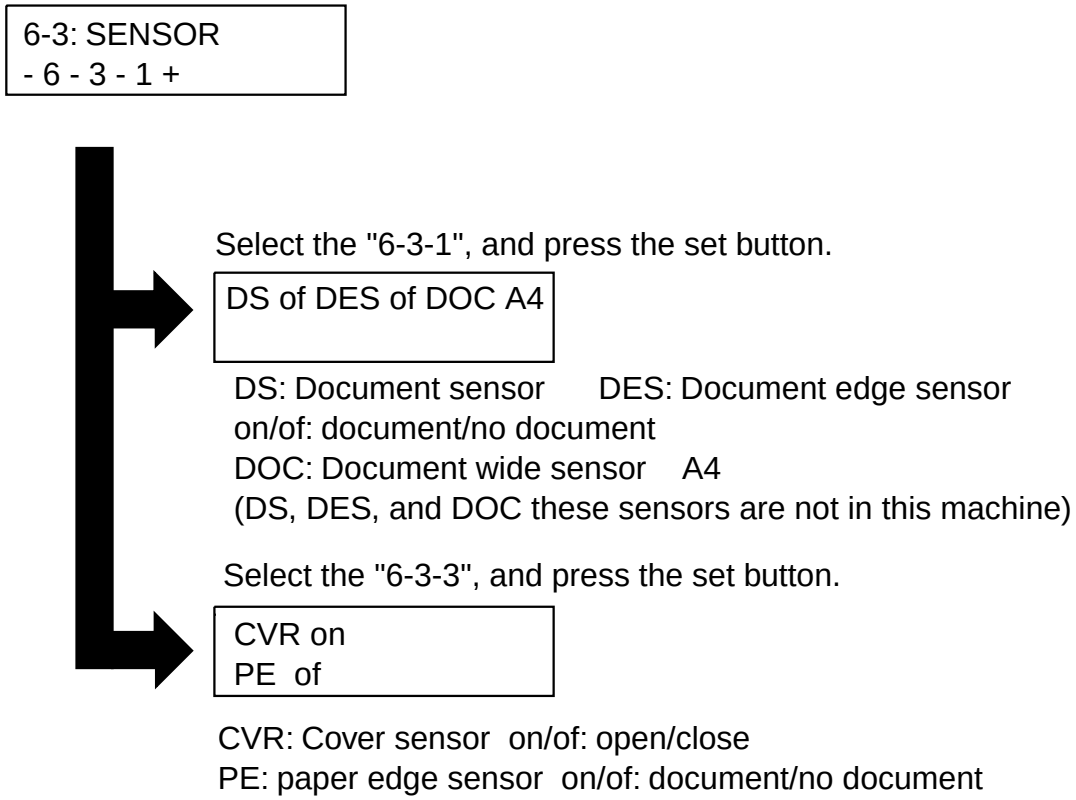

6-3: SENSOR
- 6 - 3 - 1 +
Select the "6-3-1", and press the set button.
DS of DES of DOC A4
DS: Document sensor DES: Document edge sensor
on/of: document/no document
DOC: Document wide sensor A4
(DS, DES, and DOC these sensors are not in this machine)
Select the "6-3-3", and press the set button.
CVR on
PE of
CVR: Cover sensor on/of: open/close
PE: paper edge sensor on/of: document/no document

Figure 4-16 Sensor Tests

b) Operation panel tests

The operation panel test is selected by pressing the **</>** button from the faculty test menu. In this test, check that the display, LED lamps, and buttons on the control panel are operating correctly.

b-1) Display test

If you press **Start** button in the menu of the operation panel, 20 letters of "H" are displayed in two lines. If you press **Start** button one more time, all the LCD dots are displayed. If you press **Start** button once again, "_" is displayed. Verify that there are no LCD dots which fail to be displayed by performing this operation.

b-2) LED lamp test

The LED lamp test is selected by pressing the **Start** button after the display test.

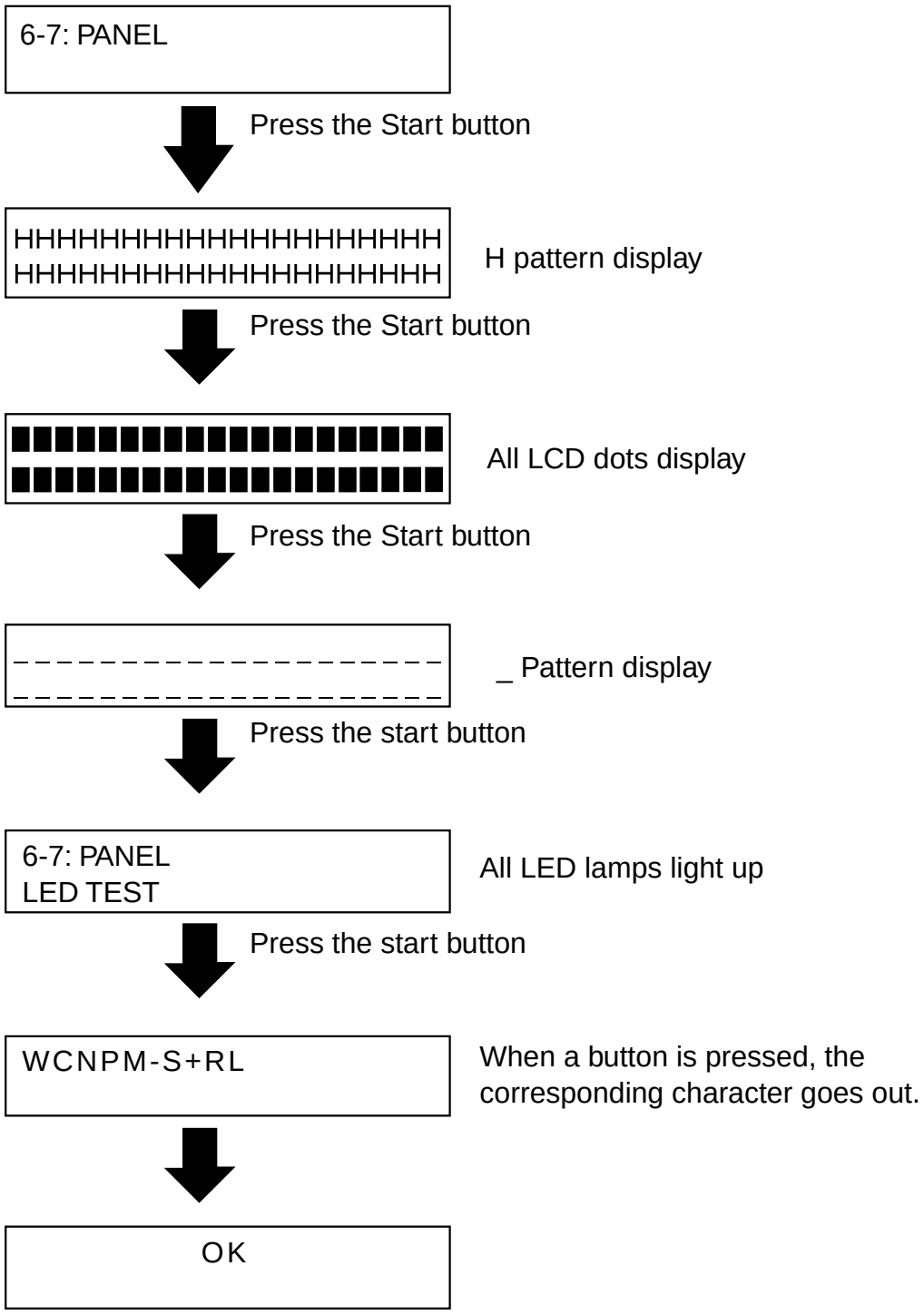
When the **Start** button is pressed, all the lamps on the control panel light. Check for any LED that does not light during the test.

b-3) Operation button test

The Operation button test is selected by pressing the **Start** button after the LED lamp test.

In this test, you press the button corresponding to the displayed character to put it out. The table giving the correspondence between the characters and the buttons is below.

Character	Operation button	Character	Operation button
W	ON/OFF button	C	Copy button
N	Scan button	P	Photo Print button
M	Menu button	-	- buton
S	Set button	+	+ button
R	Resume button	L	Color/B&W button



Press the Stop/Reset button to end the test.

Figure 4-17 Operation Panel

7. SERVICE REPORT

7.1 Report Output Function

7.1.1 Service report output functions

The fax outputs service data setting status, past communications history reports.

a) List of service reports

The fax outputs the service reports shown below.

Report type	Operations
1. System data list	In the service mode, and select SERVICE REPORTS using the </> button. Press the **Set** button; then, select the type of list to generate using the </> button.
2. System dump list	
3. System data list & System dump list	

a-1) System data list

This list shows service data #1~#5, #7, #9 setting statuses.
The following is a sample list.

FAX 001

****
*** SYSTEM DATA LIST ***
****

#1 SSSN

SW01	-----	00000000
SW02	-----	00000000
SW03	-----	00000000
SW04	-----	10000000
SW05	-----	00000000
SW06	-----	10010000
SW07	-----	00000000
SW08	-----	00000000
SW09	-----	00000000
SW10	-----	00000000
SW11	-----	00000000
SW12	-----	00000010
SW13	-----	00000000
SW14	-----	00000000
SW15	-----	00000000
SW16	-----	00000011
SW17	-----	00000000
SW18	-----	00000000
SW19	-----	00000000
SW20	-----	10000000
SW21	-----	00000000
SW22	-----	00000000
SW23	-----	00000000
SW24	-----	00000000
SW25	-----	00000000
SW26	-----	00000000
SW27	-----	00000000
SW28	-----	00000000
SW29	-----	00000000
SW30	-----	00000000
SW31	-----	00000000
SW32	-----	00000000
SW33	-----	00000000
SW34	-----	00000000
SW35	-----	00000000
SW36	-----	00000000
SW37	-----	00000000
SW38	-----	00000000
SW39	-----	00000000
SW40	-----	00000000
SW41	-----	00000000
SW42	-----	00000000
SW43	-----	00000000
SW44	-----	00000000
SW45	-----	00000000

Figure 4-18 System Data List (1/8)

FAX 002

SW45	-----	00000000
SW47	-----	00000000
SW48	-----	00000000
SW49	-----	00000000
SW50	-----	00000000

#2 MENU

05:	-----	OFF
06:	-----	DIAL
07:	-----	10
08:	-----	3429
09:	-----	33.6
10:	-----	25Hz

#3 NUMERIC Param.

02:	-----	10
03:	-----	15
04:	-----	12
05:	-----	4
06:	-----	4
09:	-----	6
10:	-----	5500
11:	-----	3500
15:	-----	120
16:	-----	4
17:	-----	100
18:	-----	0
19:	-----	200
20:	-----	100
21:	-----	0
22:	-----	200
23:	-----	44
24:	-----	20
25:	-----	60
26:	-----	44
30:	-----	0

#4 NCU

1. TONE / PULSE

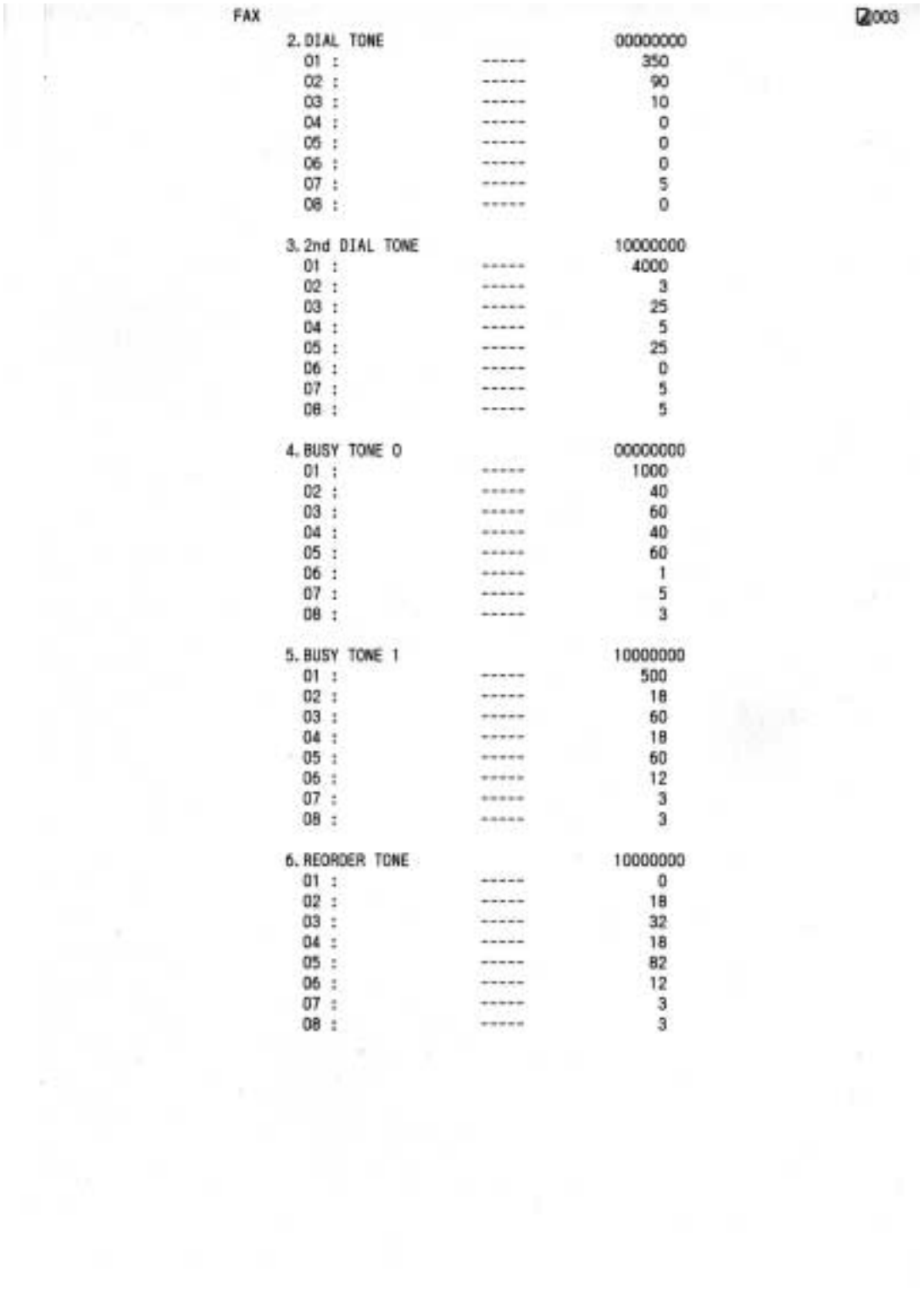
1. TONE

01 :	-----	90
02 :	-----	180

2. PULSE ----- DP(N)

01 :	-----	100
02 :	-----	200
03 :	-----	39
04 :	-----	780

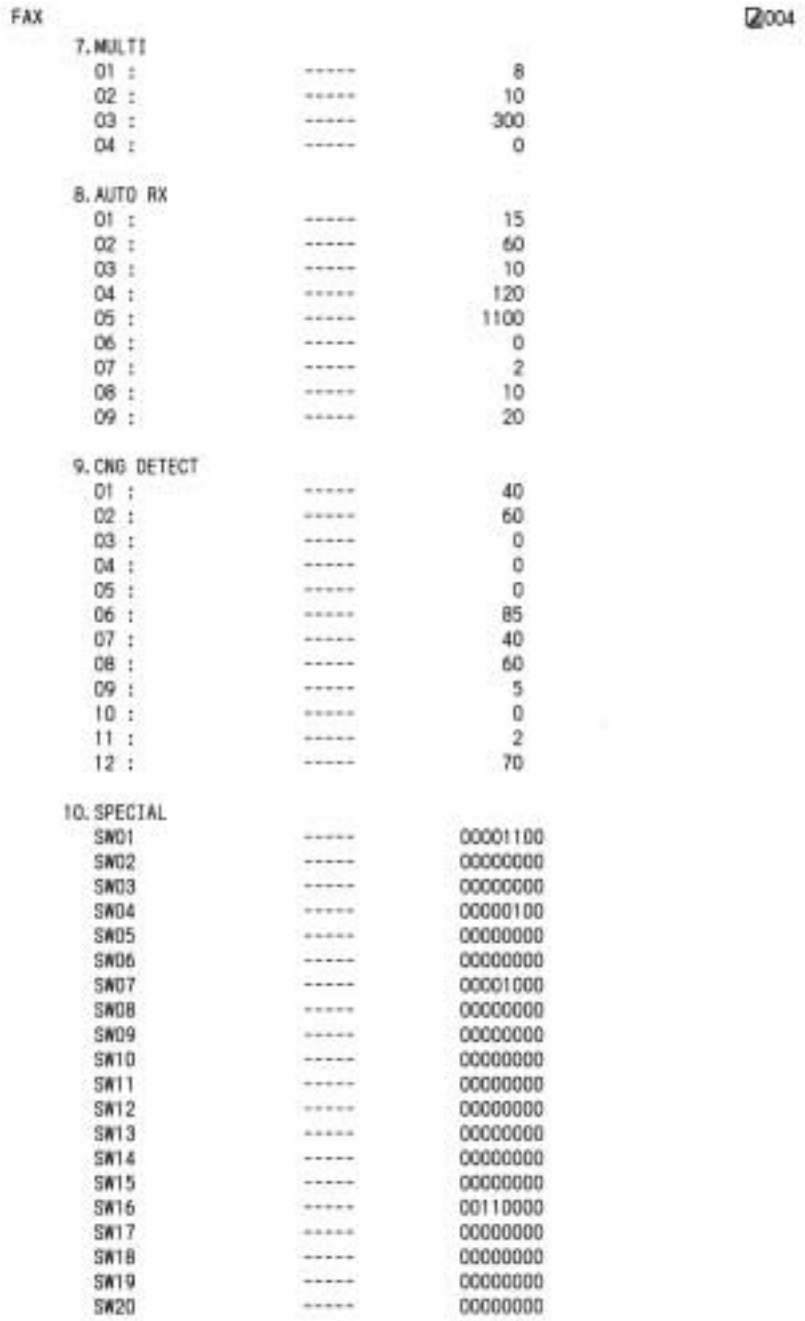
Figure 4-19 System Data List (2/8)



FAX 003

2. DIAL TONE		00000000
01 :	-----	350
02 :	-----	90
03 :	-----	10
04 :	-----	0
05 :	-----	0
06 :	-----	0
07 :	-----	5
08 :	-----	0
3. 2nd DIAL TONE		10000000
01 :	-----	4000
02 :	-----	3
03 :	-----	25
04 :	-----	5
05 :	-----	25
06 :	-----	0
07 :	-----	5
08 :	-----	5
4. BUSY TONE 0		00000000
01 :	-----	1000
02 :	-----	40
03 :	-----	60
04 :	-----	40
05 :	-----	60
06 :	-----	1
07 :	-----	5
08 :	-----	3
5. BUSY TONE 1		10000000
01 :	-----	500
02 :	-----	18
03 :	-----	60
04 :	-----	18
05 :	-----	60
06 :	-----	12
07 :	-----	3
08 :	-----	3
6. REORDER TONE		10000000
01 :	-----	0
02 :	-----	18
03 :	-----	32
04 :	-----	18
05 :	-----	82
06 :	-----	12
07 :	-----	3
08 :	-----	3

Figure 4-20 System Data List (3/8)



FAX 004

7.MULTI

01 :	-----	8
02 :	-----	10
03 :	-----	300
04 :	-----	0

8.AUTO RX

01 :	-----	15
02 :	-----	60
03 :	-----	10
04 :	-----	120
05 :	-----	1100
06 :	-----	0
07 :	-----	2
08 :	-----	10
09 :	-----	20

9.CNG DETECT

01 :	-----	40
02 :	-----	60
03 :	-----	0
04 :	-----	0
05 :	-----	0
06 :	-----	85
07 :	-----	40
08 :	-----	60
09 :	-----	5
10 :	-----	0
11 :	-----	2
12 :	-----	70

10.SPECIAL

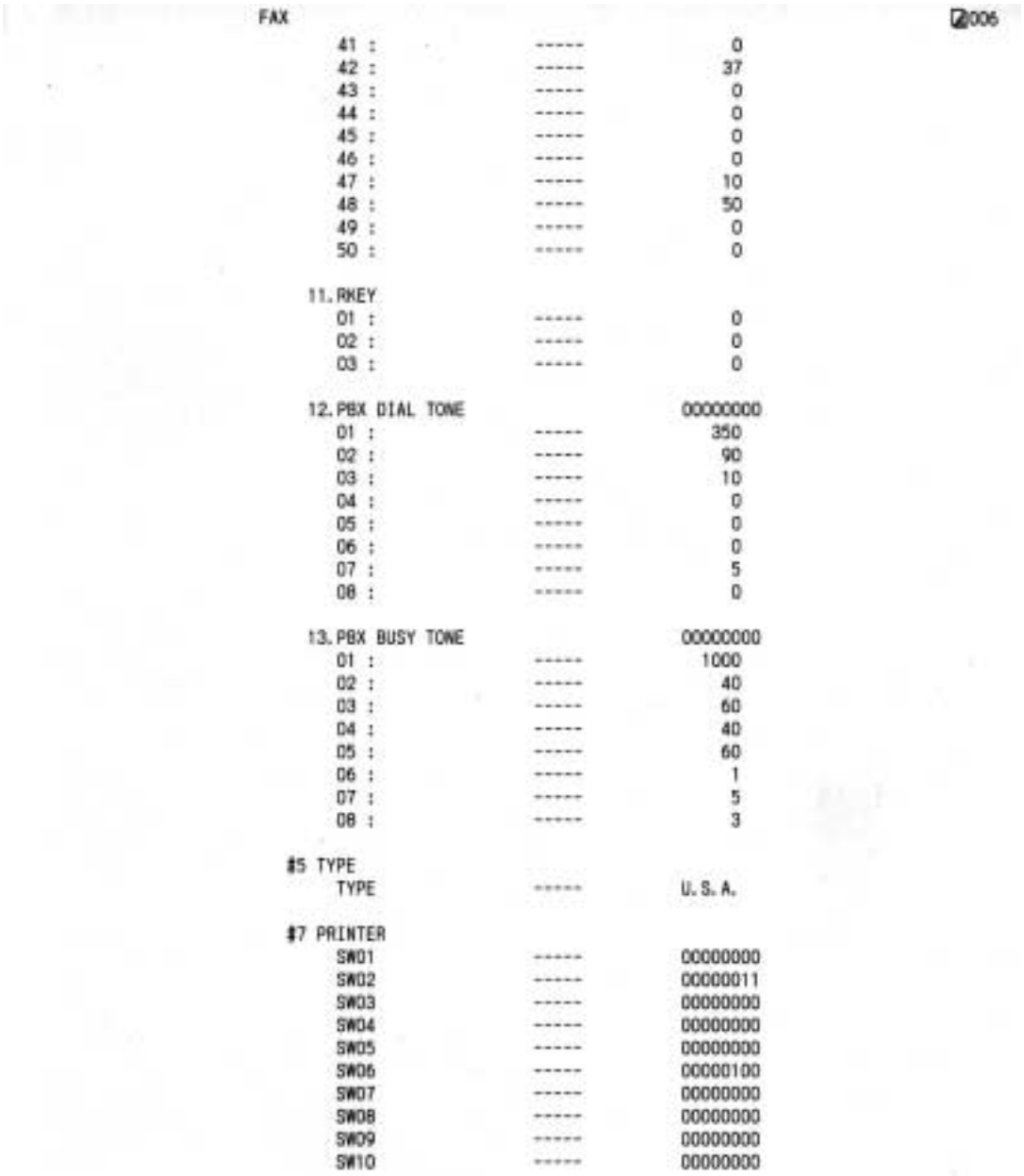
SW01	-----	00001100
SW02	-----	00000000
SW03	-----	00000000
SW04	-----	00000100
SW05	-----	00000000
SW06	-----	00000000
SW07	-----	00001000
SW08	-----	00000000
SW09	-----	00000000
SW10	-----	00000000
SW11	-----	00000000
SW12	-----	00000000
SW13	-----	00000000
SW14	-----	00000000
SW15	-----	00000000
SW16	-----	00110000
SW17	-----	00000000
SW18	-----	00000000
SW19	-----	00000000
SW20	-----	00000000

Figure 4-21 System Data List (4/8)

FAX ☑005

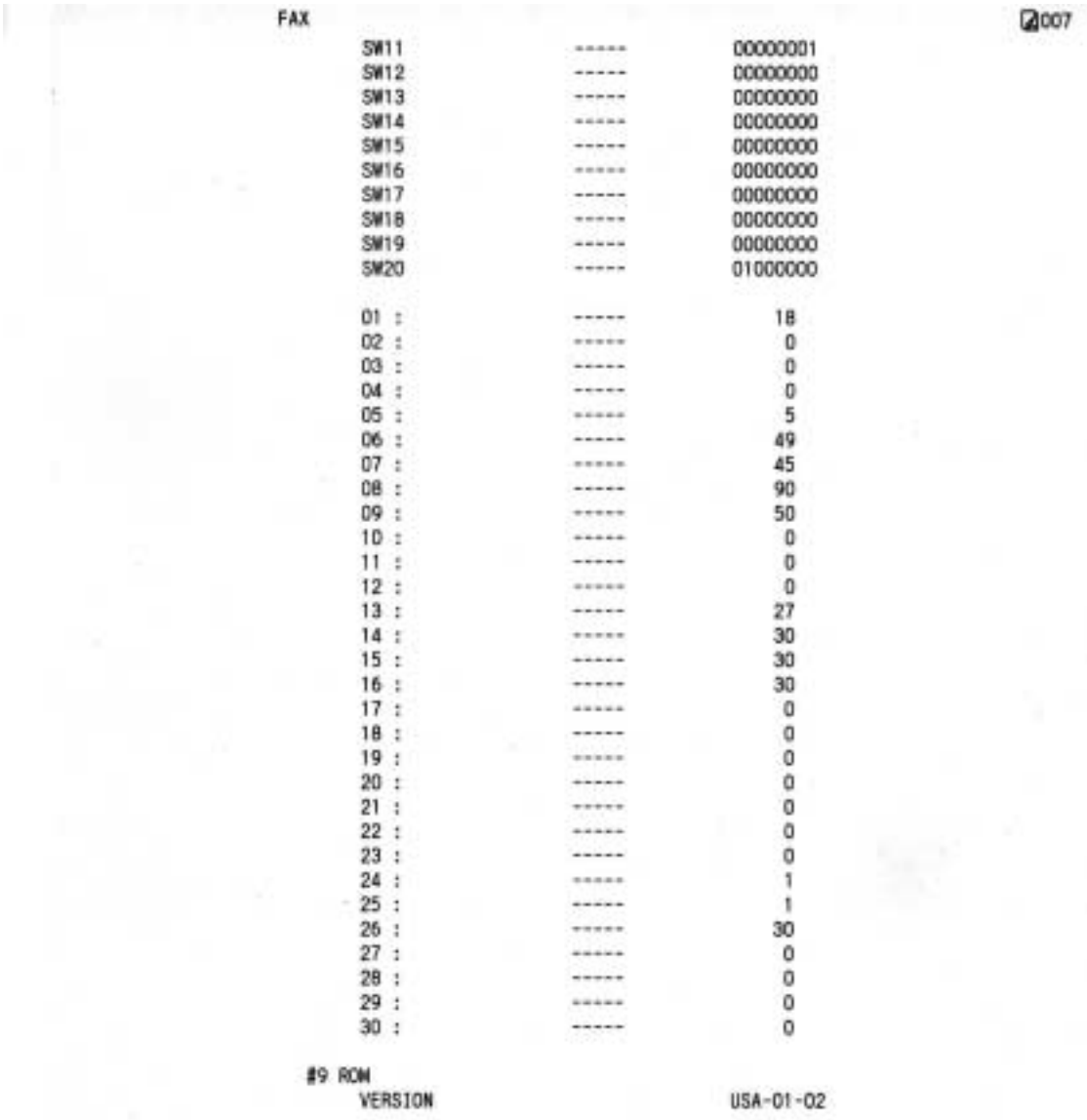
SW21	-----	00000000
SW22	-----	00000000
SW23	-----	00000000
SW24	-----	00000010
SW25	-----	00000000
SW26	-----	00000000
SW27	-----	00000000
SW28	-----	01000001
SW29	-----	00000010
SW30	-----	00000000
01 :	-----	5
02 :	-----	30
03 :	-----	30
04 :	-----	4
05 :	-----	150
06 :	-----	100
07 :	-----	6
08 :	-----	0
09 :	-----	0
10 :	-----	10
11 :	-----	2
12 :	-----	1
13 :	-----	3
14 :	-----	60
15 :	-----	1000
16 :	-----	8
17 :	-----	45
18 :	-----	99
19 :	-----	0
20 :	-----	58
21 :	-----	0
22 :	-----	0
23 :	-----	0
24 :	-----	10
25 :	-----	25
26 :	-----	2
27 :	-----	2
28 :	-----	0
29 :	-----	0
30 :	-----	6
31 :	-----	0
32 :	-----	0
33 :	-----	0
34 :	-----	0
35 :	-----	0
36 :	-----	0
37 :	-----	0
38 :	-----	0
39 :	-----	0
40 :	-----	0

Figure 4-22 System Data List (5/8)



```
FAX                                                          006
      41 :                -----              0
      42 :                -----             37
      43 :                -----              0
      44 :                -----              0
      45 :                -----              0
      46 :                -----              0
      47 :                -----             10
      48 :                -----             50
      49 :                -----              0
      50 :                -----              0

   11.RKEY
      01 :                -----              0
      02 :                -----              0
      03 :                -----              0

   12.PBX DIAL TONE                     00000000
      01 :                -----            350
      02 :                -----             90
      03 :                -----             10
      04 :                -----              0
      05 :                -----              0
      06 :                -----              0
      07 :                -----              5
      08 :                -----              0

   13.PBX BUSY TONE                     00000000
      01 :                -----           1000
      02 :                -----             40
      03 :                -----             60
      04 :                -----             40
      05 :                -----             60
      06 :                -----              1
      07 :                -----              5
      08 :                -----              3

#5 TYPE
      TYPE                -----         U.S.A.

#7 PRINTER
      SW01                -----         00000000
      SW02                -----         00000011
      SW03                -----         00000000
      SW04                -----         00000000
      SW05                -----         00000000
      SW06                -----         00000100
      SW07                -----         00000000
      SW08                -----         00000000
      SW09                -----         00000000
      SW10                -----         00000000
```

Figure 4-23 System Data List (6/8)



FAX 007

SW11	-----	00000001
SW12	-----	00000000
SW13	-----	00000000
SW14	-----	00000000
SW15	-----	00000000
SW16	-----	00000000
SW17	-----	00000000
SW18	-----	00000000
SW19	-----	00000000
SW20	-----	01000000
01 :	-----	18
02 :	-----	0
03 :	-----	0
04 :	-----	0
05 :	-----	5
06 :	-----	49
07 :	-----	45
08 :	-----	90
09 :	-----	50
10 :	-----	0
11 :	-----	0
12 :	-----	0
13 :	-----	27
14 :	-----	30
15 :	-----	30
16 :	-----	30
17 :	-----	0
18 :	-----	0
19 :	-----	0
20 :	-----	0
21 :	-----	0
22 :	-----	0
23 :	-----	0
24 :	-----	1
25 :	-----	1
26 :	-----	30
27 :	-----	0
28 :	-----	0
29 :	-----	0
30 :	-----	0

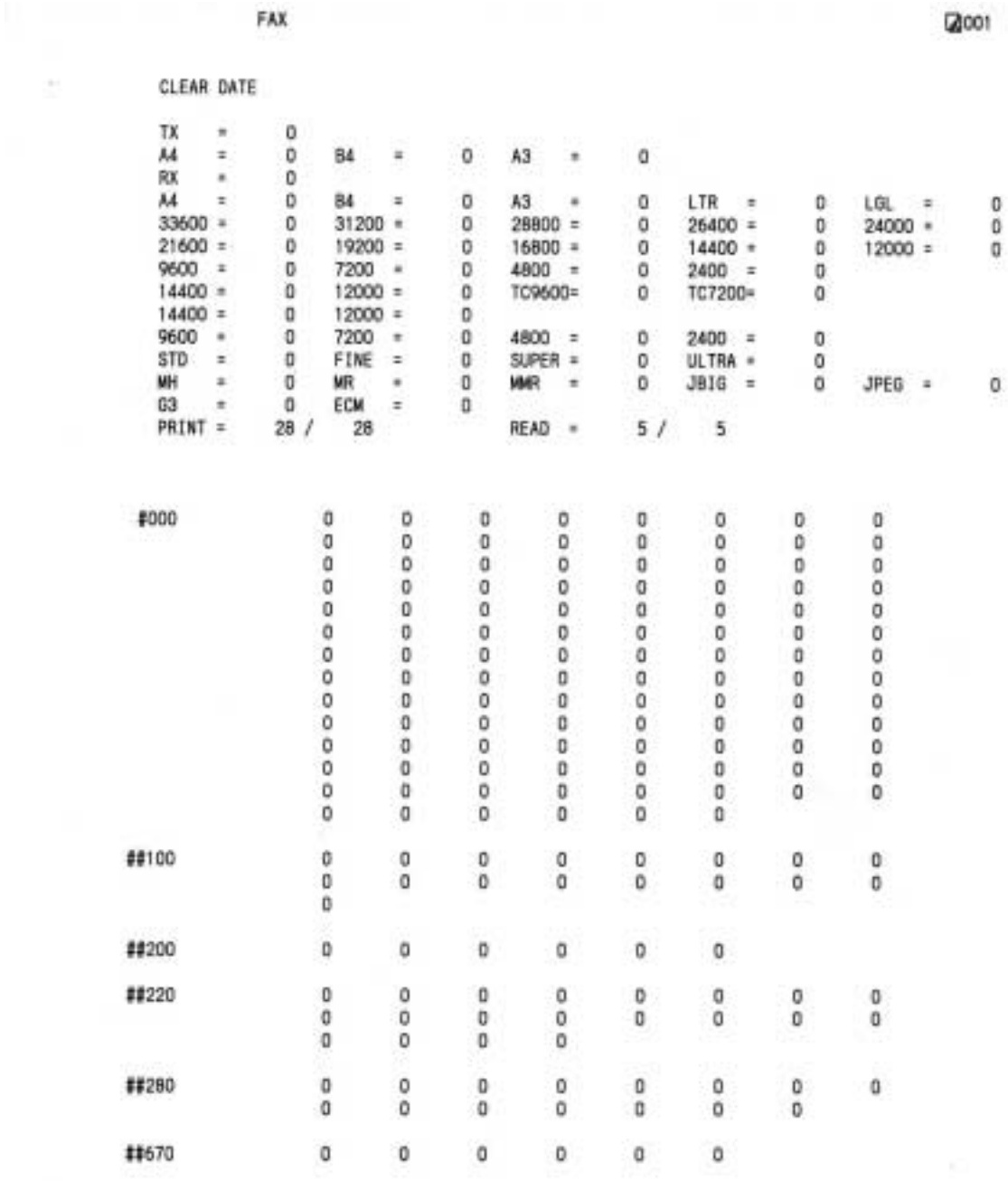
#9 ROM
VERSION USA-01-02

Figure 4-24 System Data List (7/8)

Figure 4-25 System Data List (8/8)

a-2) System dump list

This list shows the past communications statuses and error communications history.
The following is a sample list.



```
                FAX                                                  001

CLEAR DATE

TX    =    0
A4    =    0   B4    =    0   A3    =    0
RX    =    0
A4    =    0   B4    =    0   A3    =    0   LTR   =    0   LGL   =    0
33600 =    0   31200 =    0   28800 =    0   26400 =    0   24000 =    0
21600 =    0   19200 =    0   16800 =    0   14400 =    0   12000 =    0
9600  =    0   7200  =    0   4800  =    0   2400  =    0
14400 =    0   12000 =    0   TC9600=    0   TC7200=    0
14400 =    0   12000 =    0
9600  =    0   7200  =    0   4800  =    0   2400  =    0
STD   =    0   FINE  =    0   SUPER =    0   ULTRA =    0
MH    =    0   MR    =    0   MMR   =    0   JBIG  =    0   JPEG  =    0
G3    =    0   ECM   =    0
PRINT =   28 /   28          READ  =    5 /    5

#000          0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0   0   0

##100         0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0

##200         0   0   0   0   0   0

##220         0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0   0
              0   0   0   0

##280         0   0   0   0   0   0   0   0
              0   0   0   0   0   0   0

##670         0   0   0   0   0   0
```

Figure 4-26 System Dump List

CLEAR DATE : Not used
RX/TX : Not used
A4/B4/A3/LTR/LGL : Not used
33600 bps~2400 bps
: Not used
STD/FINE/SUPER/ULTRA
: Not used
MH/MR/MMR/JBIG/JPEG
: Not used
G3/ECM : Not used
PRINT/READ : Total number df pages printed/scanned

[Display example]
PRINT = 30*/100** READ = 30*/100**
* Indicates the value input with Service Data #8 CLEAR, COUNTER.
** Indicates the value counted since shipment from the factory.

#000~##750
[Display example] : Not used

##280	1	7	3	0	0
	##280 errors	##281 errors	##282 errors		

8. WIRING DIAGRAM

8.1 Wiring Diagram

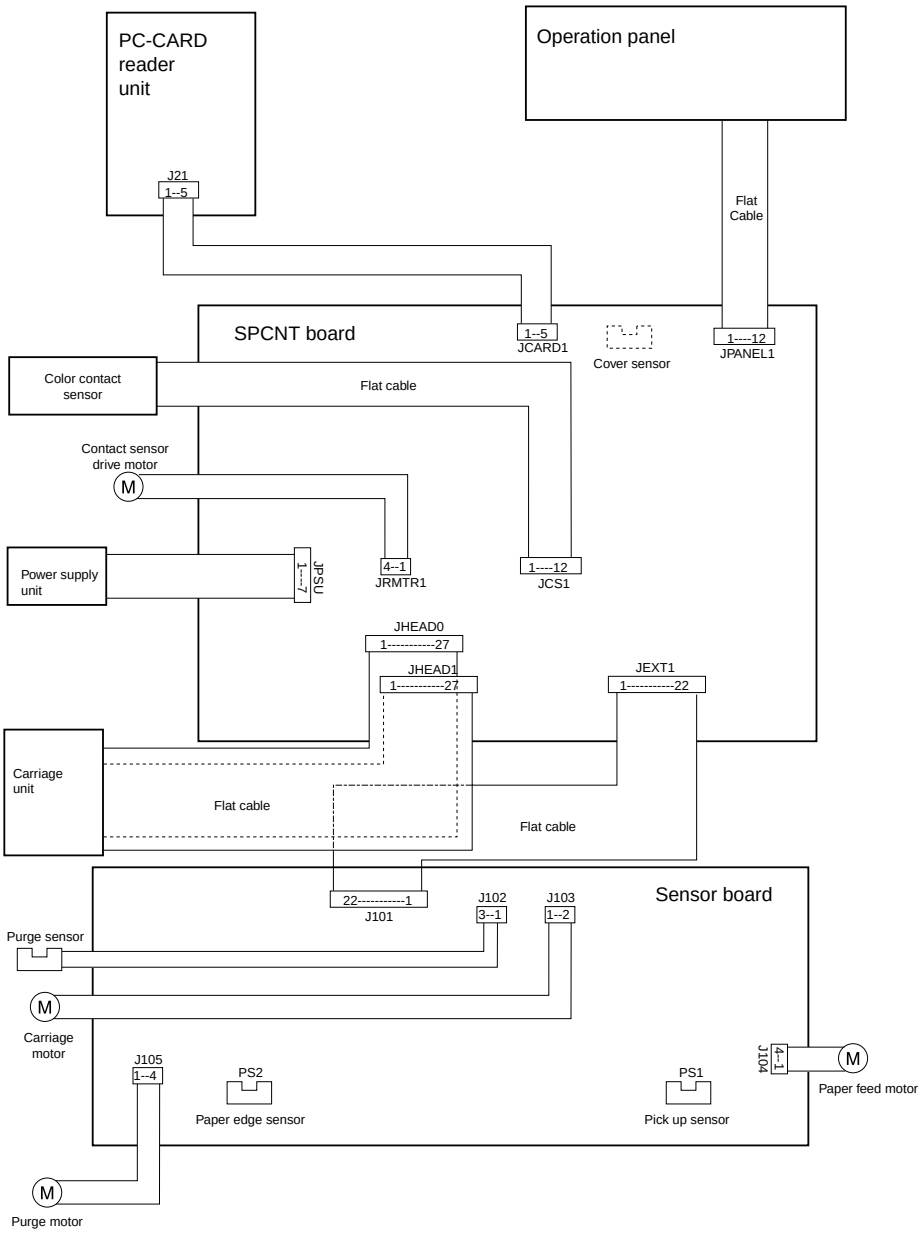
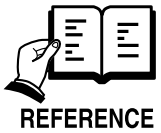


Figure 4-27 Wiring Diagram

Chapter 5

Appendix

1. INSTALLATION



This machine has been designed for user installation. Therefore, this manual containsonly an outline description of the procedures. For details of the installation, see the QUICK START GUIDE.

1.1 Setting up

- Choosing a Location for Your MultiPASS
- Do you have everything?
  Check that nothing is missing when the unit is unpacked.
- Removing shipping materials.
  Peel off all strips of tape from the unit.
- Assembling the MultiPASS
- Making Connections
  Connect the USB cable.
- Powering up.
  Connect the power cord and check that power supplied.
- Installing the BJ cartridge.
  Unseal the BJ cartridge, and load it into the machine.
- Loading Paper
  Set paper in the auto sheet feeder, in **PAPER SIZE** under **PAPER SELECT**, set the size of paper that is to be used.

1.2 Checking Operations

- Copy operation
  Make a copy, and check that the operation is normal.
- Communication test
  Transmit to, and receive from other facsimiles, and check that images are sent normally when transmitted, and are printed normally when received.

What to do when trouble occurs

Very rarely, during use, the display may go out, all the buttons may stop working, or some other trouble may occur because of strong electrical noise or a large amount of static. If such trouble occurs, initialize the RAM. During installation, we recommend that you perform the all clear operation after the power on. Refer to *NOTE: "ALL clear" when nothing works on Page 3-4 .*

2. USER DATA FLOW

2.1 User Data Flow (by Operation Panel)

2.1.1 Copy menu settings

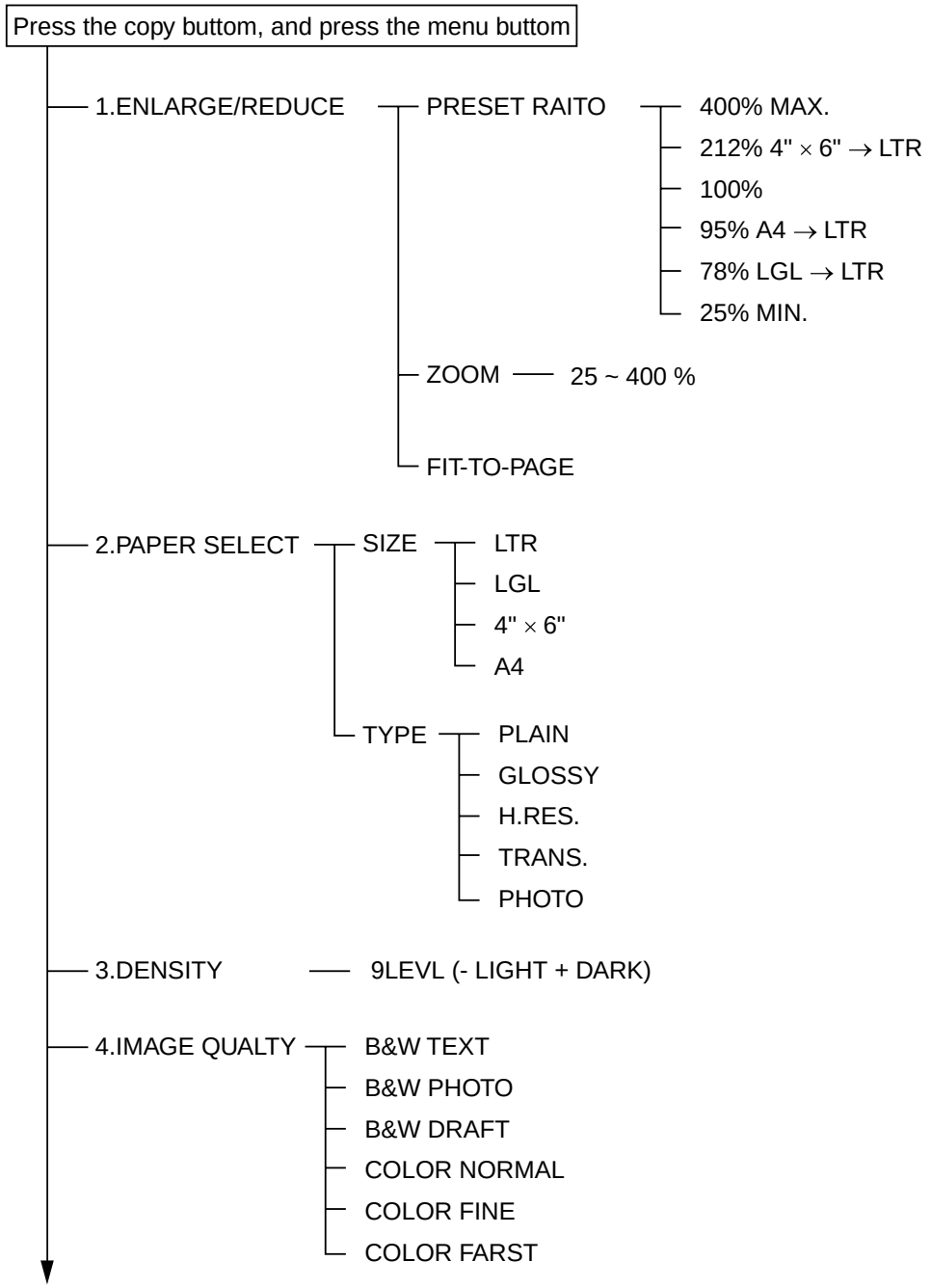


Figure 5-1 Copy Menu Settings (1/3)

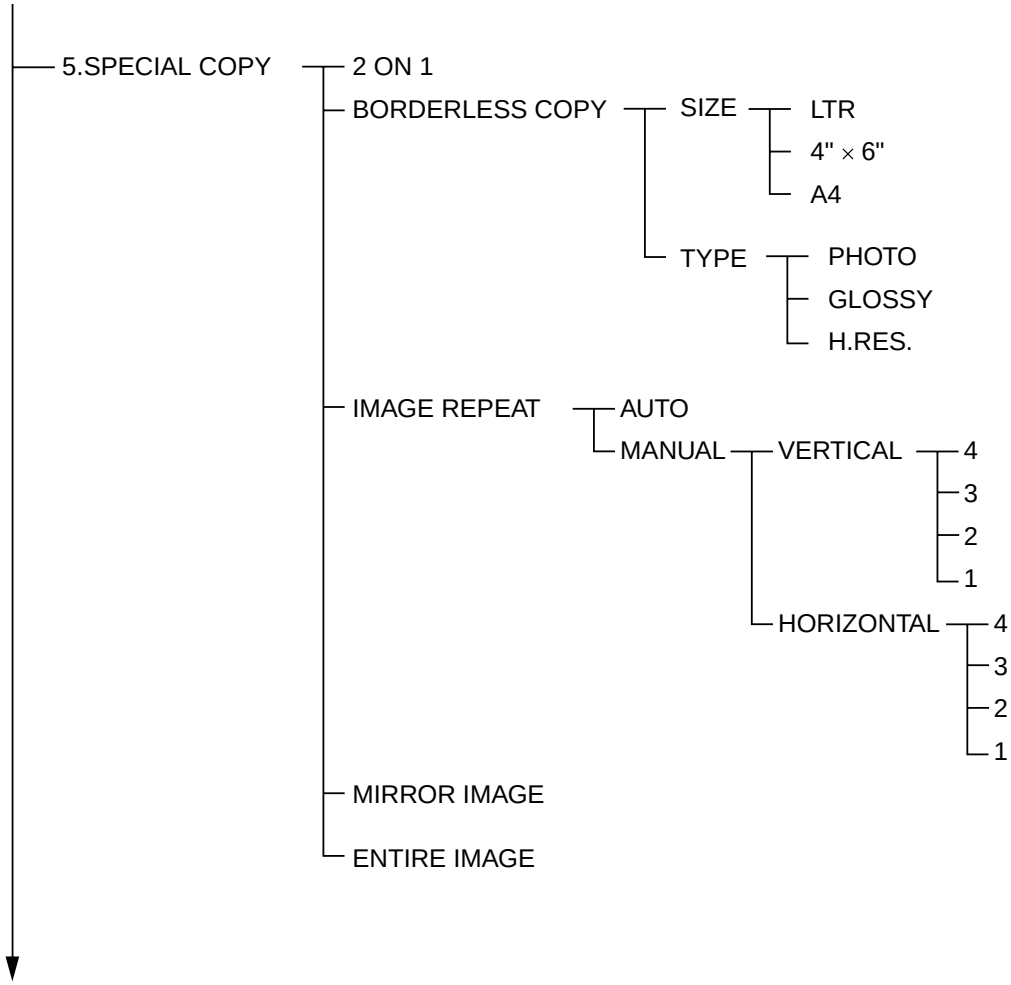


Figure 5-2 Copy Menu Settings (2/3)

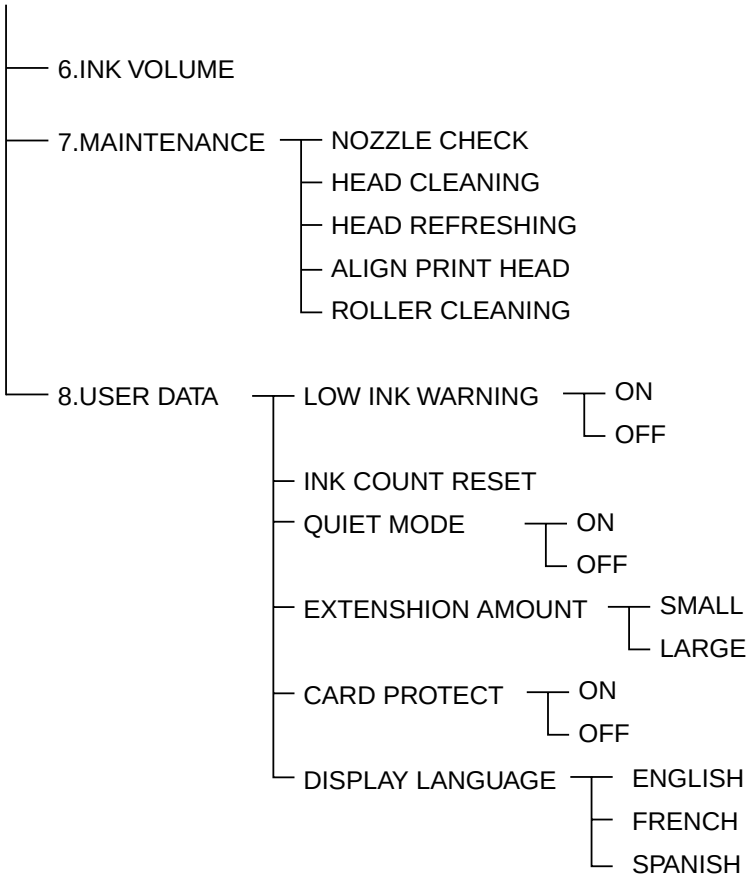


Figure 5-3 Copy Menu Settings (3/3)

2.1.2 Scan menu setting

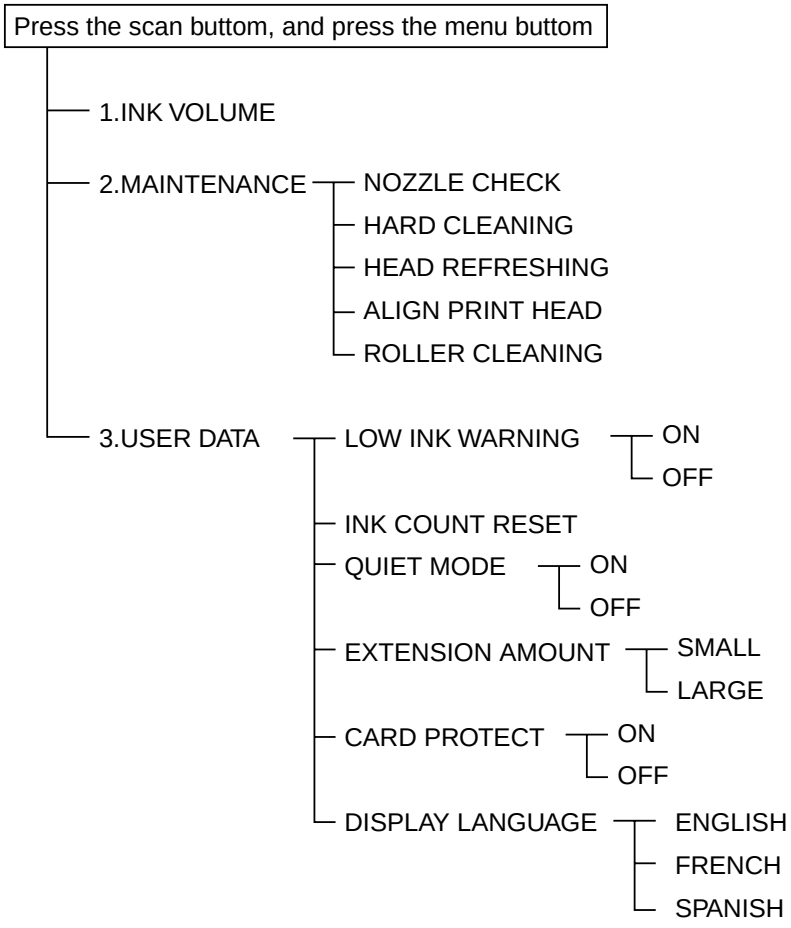


Figure 5-4 Scan Menu Settings (1/1)

2.1.3 Phot print menu settings

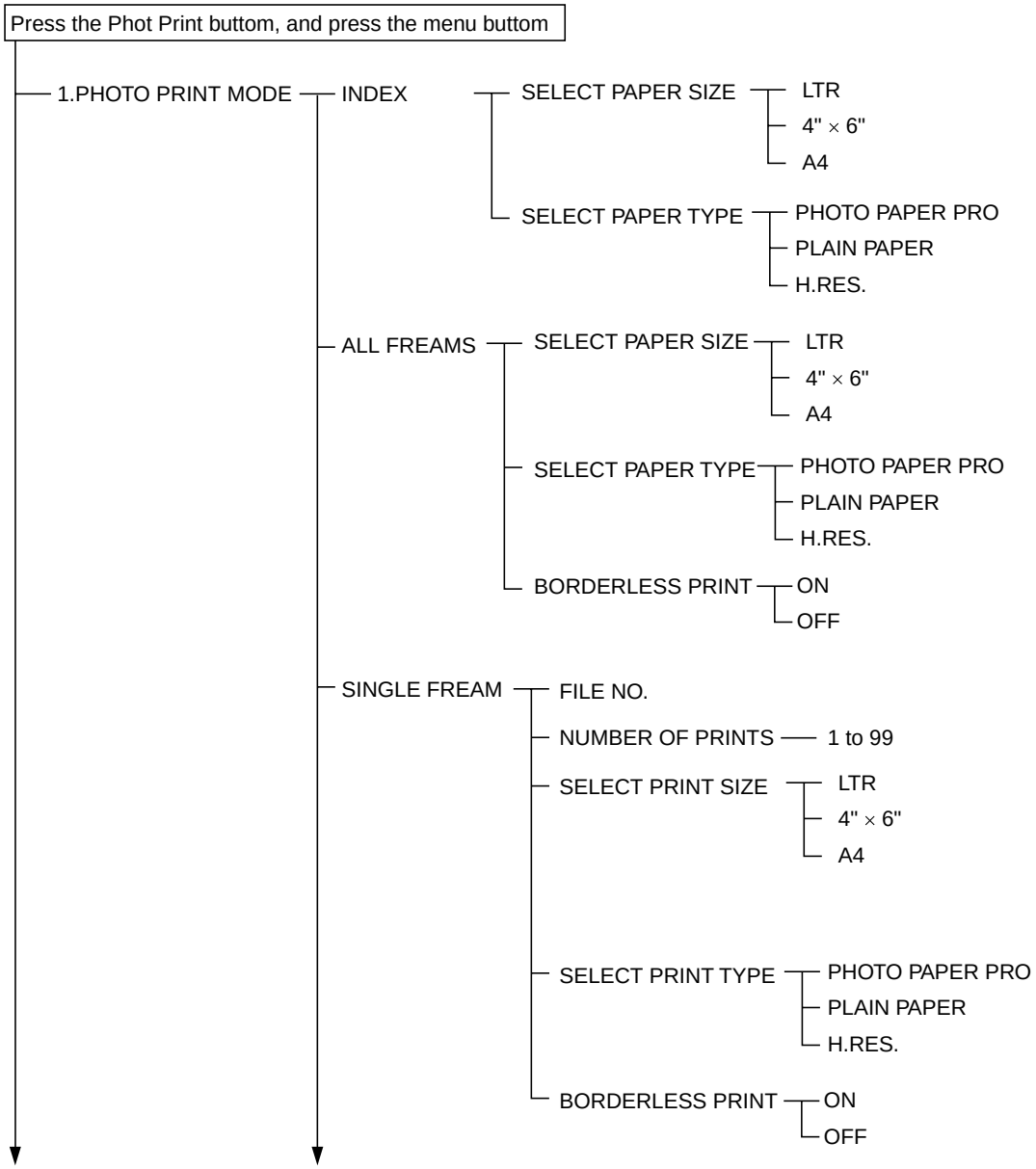


Figure 5-5 Photo print Menu Settings (1/3)

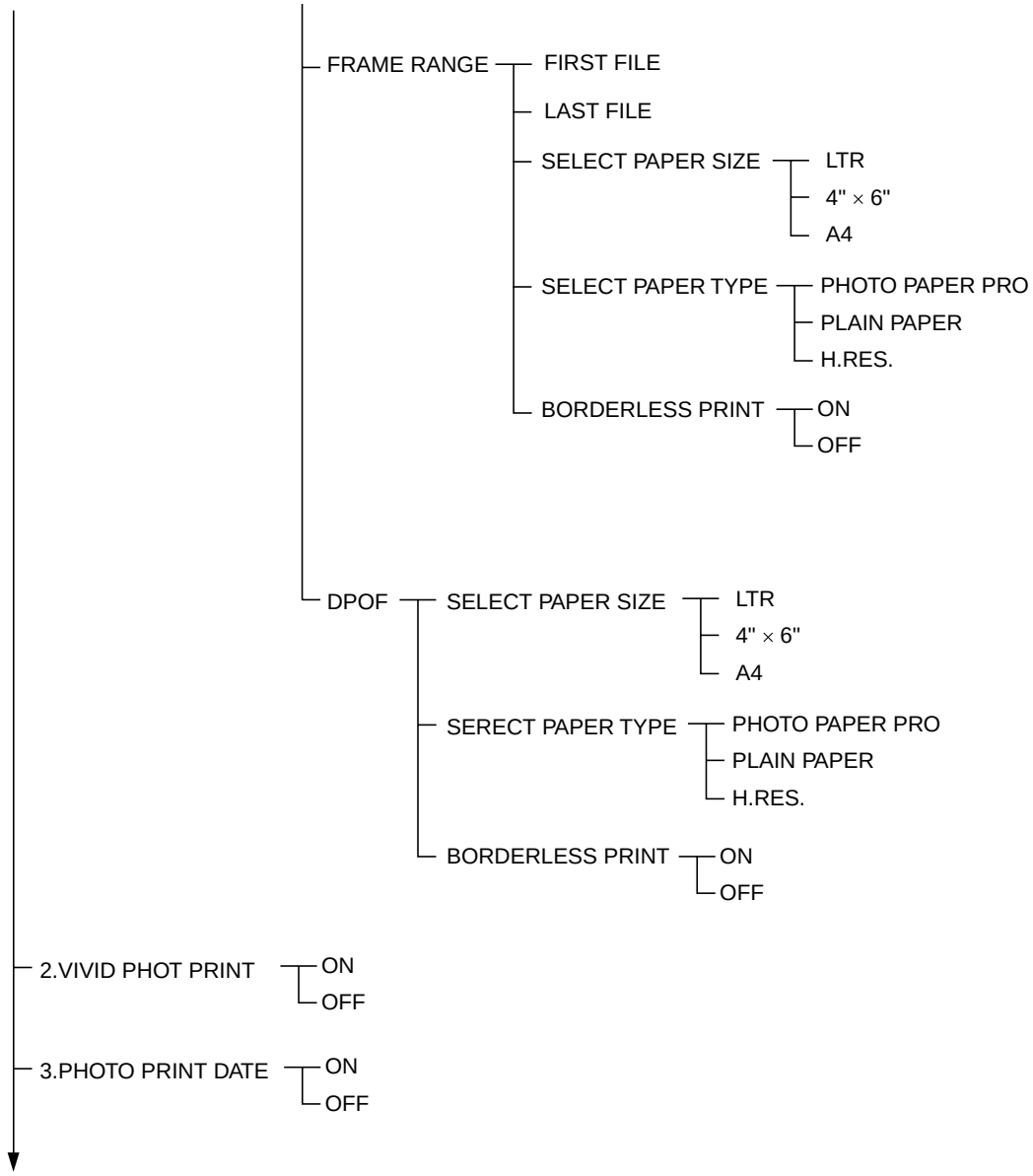


Figure 5-6 Photo print Menu Settings (2/3)

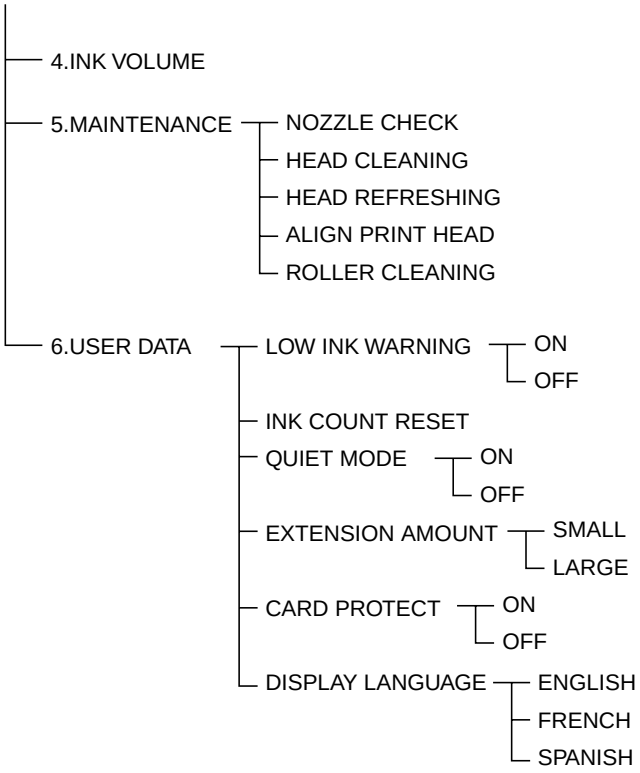


Figure 5-7 Photo print Menu Settings (3/3)

Canon

0802 IP CANON INC.